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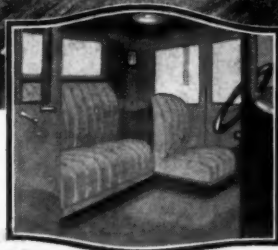
AUTOMOTIVE INDUSTRIES

The AUTOMOBILE

Vol. XLIX
Number 13

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Just as the artists, entrusted with the interior decorating of this, the finest ship afloat, spent months of diligent search for the beautiful and harmonious in lighting effects and furnishings; so, the designers of motor car bodies of character are compelled to seek out sources where interior fittings may be procured in keeping with other appointments. It is quite natural that the quest for distinctive interior hardware eventually leads to TERNSTEDT.

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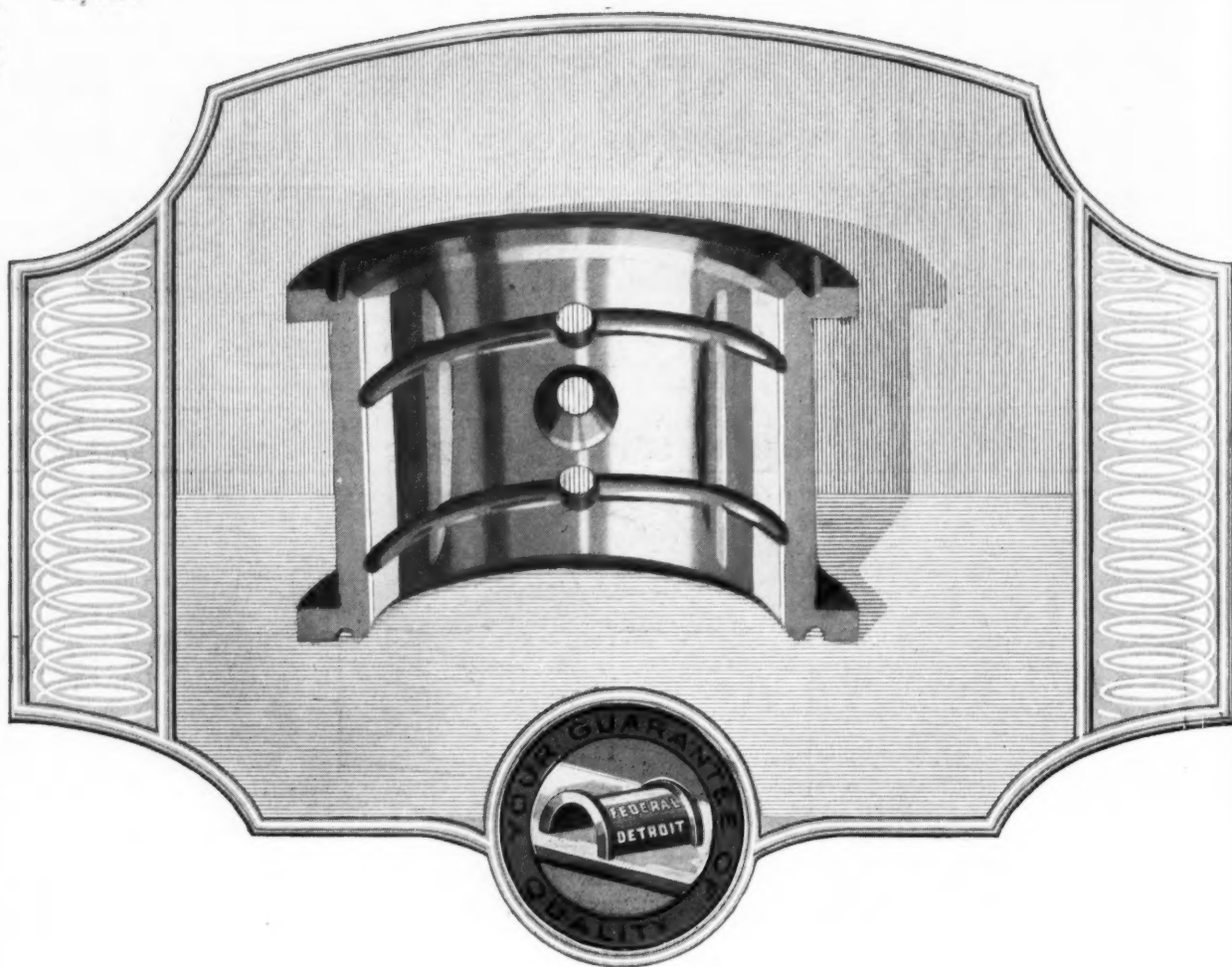
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AUTOMOTIVE INDUSTRIES

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VOL. XLIX

NEW YORK—THURSDAY, SEPTEMBER 27, 1923

No. 13

Real Convention of the Industry Held by M. & A. M. A.

Boston meeting most successful in history of organization. Parts makers genuine students of business. Manifest deep interest in jobber relations, exports, credits, service and traffic. Snappy discussions feature sessions. Speeches good.

By James Dalton

CREDITS.

JOBBERS.

EXPORTS.

SERVICE.

TRAFFIC.

THESE were the "big five" among the vital business problems discussed by members of the Motor and Accessory Manufacturers' Association last week at the Boston convention—the most successful ever held by the organization. It was, in fact, a convention of the industry. The keynote of it all was "How to Broaden the Market for Automotive Products" by coordination and cooperation.

Most conventions are cut and dried with a well-oiled steam roller in readiness to crush anyone brazen enough to "start something." Not so with that of the M. A. M. A. Any session which doesn't lead into a real, snappy, free-for-all discussion is classed as almost a total loss and it might be said in passing that there are few such losses.

Representatives of more than 200 concerns in the parts and accessory field, with guests from other branches of the industry, registered at Boston. Going up into New England for the annual fall meeting was an experiment and there was some fear it might cut down the attendance because all previous meetings have been held in Cleveland, Detroit or Buffalo. So eager are these men to discuss mutual problems

and be mutually helpful, however, that they probably would go to Texas or Oklahoma if they couldn't get together any nearer home.

Many "high lights" developed at the meeting, but the brightest was the convention itself and the men it brought together. These business men didn't go to Boston either to play golf or eat beans and scrod. They went to study business and to learn. They were on the job when the doors opened and they stayed until the last shot was fired. If they didn't agree with what the speakers said they felt no hesitation in letting the world know about it, but there was no acrimony. There were more men at the meeting Wednesday night devoted to a discussion of jobber problems than there were at the shore dinner out at Nantasket the following evening.

THESE parts and accessory manufacturers are becoming broad students of business. They have learned that it is something more than a two-wheeled cart with production on one side and sales on the other. They know that traffic congestion in New York may cut down the sale of accessories; that bad roads in Mississippi may reduce the market for tires; that an unfair tax burden on motorists in Pennsylvania may cut down the sale of all kinds of original equipment; that coordination of rail and highway transport will make shipments more expeditious;

that four-wheel brakes will widen the market for brake lining.

Lacking a genuine convention of the entire industry which would bring together manufacturers of cars and trucks, parts and accessories and the jobbers and distributors of this merchandise, they study all these correlated problems as closely as they can at their own meeting.

These conventions began as gatherings of credit men, but the programs have gradually broadened and it was demonstrated this year that while each department in a business house has problems peculiar to itself they can be solved successfully only if the head of each department is familiar with the troublesome questions confronting the heads of every other department.

IT was brought out emphatically, for example, that sales and credit managers should work in closest cooperation. Every salesman on the road should be a scout for the credit department and he should know exactly the kind of information to send back to the factory. Practically the same faces were seen at all the sessions of the convention and the same men sometimes plunged into discussions on exports, jobber relations and credits.

In the lobbies, at meals and in the rooms after the meetings were over, these manufacturers and executives were talking only one theme and that was business. They talked about it as it related to their individual problems and also in its broader phases as it affects the industry as a whole and the country in general. Most of them are no mean economists. They are studying charts and curves and graphs. They know exactly what conditions are, not only in every section of the United States but in every country in the world. They know what effect these conditions are likely to have on the sale of automotive products both at home and abroad, and they are pondering deeply on what they can do to expand their markets.

They are optimists on the future of the industry, but their optimism is tempered with sanity. There was mighty little conversation about plant expansions. If business is as good next year as it has been in 1923 they will be entirely satisfied. Sales aren't as good now as they were two or three months ago, but the almost universal statement was that they are "better than we expected they would be." If an average were struck it probably would be found that business was off about 30 per cent from the peak, but it is still very good and there is no complaint. They know the foundations of the present prosperity are sound and will continue to be.

THE parts makers have no illusions about next year.

They don't believe that sales of motor vehicles will be any larger than they have been this year if they are as large. They are convinced that the market certainly will not fall below 2,500,000 cars and trucks, but they admit frankly they have no more idea than a jackrabbit how much over that figure it will go.

They are making commitments for supplies on the basis of the minimum they can expect and not on the maximum. Their inventories are well balanced and they have no intention of plunging, although they will take advantage of price fluctuations on materials to meet their definite needs. Those who make replacement parts and equipment know that there is not likely to be such a wide variation in this market as there is for original equipment. Sales in this field are much more likely to expand than to contract under the impetus of constantly improving merchandising methods.

The word "service" in relation to the user of their products was constantly cropping up. It was evident that most of them have a clear and broad conception of

their obligations in this respect. They know it is the re-order business which counts most in the long run and they know that it is the company which gives its customers the best service which will be most successful. The kind of service they talked about is real and tangible. It means good work at a fair price.

There was not a dull or perfunctory session at the convention, but those which stood out most vividly were devoted to jobber relations, credits and exports. The M. A. M. A. never before had gone into the jobber question and its entry into this field was an experiment, but the interest developed proved that the members have a keen appetite for consideration of these problems. Ben Asch of New York presided at this session and he made it snappy. Much of the debate centered about the address of E. P. Chalfant, in which he contended that companies which can afford to do so should operate through factory branches. He believed business should be built from the consumer to the jobber instead of from the jobber to the consumer.

At the credit session, which was presided over by R. E. Hayslett, treasurer of the Hydraulic Steel Co., chief interest was evinced in the abuse of the trade acceptance. It was agreed that there can be no excuse for granting a cash discount on this paper and that such instruments never should be accepted for due or past due accounts.

THE export meeting probably was the most remarkable of the entire convention. The export branch of the association was organized little more than a year ago and at the Buffalo convention last year it was attended by only about a baker's dozen, but at Boston Chairman Chalfant, had he been musically inclined, might well have sung, "Hail, hail, the gang's all here." They not only were there but they stayed to the end.

A new vision of export possibilities has been seen by the parts manufacturers. They realize, as few of them have before, that they have in front of them a wonderful foreign market which will take up the slack if domestic sales fall off, but the old conception of exports as something to be cultivated only when business is bad at home has vanished. It can't be an "on again, off again, gone again" proposition. They are going after export sales on a permanent basis and they are learning the trade language of their foreign customers. Export managers asserted it was one of the most valuable meetings they ever attended and executives who had been skeptical about overseas markets were convinced they had been overlooking a mighty good bet.

Two important messages were taken to the parts makers by representatives of the National Automobile Chamber of Commerce. Roy D. Chapin, chairman of the highways committee of the N. A. C. C., made public for the first time the fact that agreement had been reached on the basic principles of highway building by highway officials, bankers, the Bureau of Public Roads and the N. A. C. C. Harry Meixell, secretary of the legislative committee of the N. A. C. C., outlined an entirely new plan worked out by the Motor Vehicle Conference Committee to combat unfair legislation in the various States.

Not the least interesting feature of the meeting was the address of Mayor James M. Curley in welcoming the convention to Boston, when he said that "the automobile is the handmaid of transportation, the keystone of our new civilization, and is entitled to a program of the most generous character of expenditure that this nation has ever known." It probably was the most forward looking address ever made by the chief executive of a great American city on the relief of traffic congestion. His remarks were broadcast by wireless.

Highways, Service and Taxes Are Topics of Opening Session

Roy D. Chapin, George H. Pride, and Harry Meixell discuss means of widening market for automotive products. Major interests have reached agreement on basic principles for road development.

HIGHWAYS, service and taxation in respect to their effect upon "Widening the Market for Automotive Products," were considered at the opening session of the convention. Two announcements of importance to the entire industry were reserved for this session. They were:

That agreement has been reached by the American Association of State Highway Officials, the Investment Bankers' Association, the Bureau of Public Roads and the National Automobile Chamber of Commerce on basic principles which should be applied in the construction of highways.

That a new plan for combatting state legislation unfair to motor vehicle operators has been worked out by the Motor Vehicle Conference Committee under which representatives of the committee will go into every State to organize the local automotive interests so that they can present to law-makers a well-thought-out, fair and constructive program for their guidance.

The announcement telling of the long forward step toward scientific highway construction was made by Roy D. Chapin, chairman of the N. A. C. C. highways committee and one of the world's foremost authorities on the subject of good roads. In his address on "Building More and Better Roads," he said:

MODERN highway transport is the sum of man's efforts to provide himself with a flexible and economical medium for the carriage of persons and commodities.

In the initial stages of the development the motor car was simply a vehicle for the uses of the few.

Today it constitutes a major force in transportation. Annihilate the 14,000,000 cars now plying the highways of America and unthinkable conditions would arise. The older agencies, robbed of a vast supplementary service, would be engulfed, productive industry would be seriously crippled, the very fabric of our civilization would be menaced.

Extend the existing facilities to permit a free and uninterrupted flow of this vast movement and at once the picture will become one of humming industry, of that contentment which comes with the satisfaction of human wishes, of progress.

Our concern then must be to expand our facilities for the use of this vehicle. We must step to one side for the moment, obtain a clear view of the problems ahead, evaluate them and then set out to solve them.

The largest question which confronts the user of highway transportation today is the question of floor space for his car, whether it be in the country or in the congested urban districts.

So rapid has been the growth of use of the motor that all of the efforts of the highway builder have not been sufficient as yet to provide the user with those capital facilities which are essential to the full use of his car.

No one can tell now what our ultimate highway needs will be. However, the Federal Aid System is limited to 7 per cent of the total mileage, which means a maximum allowable mileage of approximately 195,000 miles. These roads alone will comprise a system eight times as large as the French national system and equal in extent to more than half of the entire road mileage of France. When completed they will permit the traveler to go from any town of 5000 people or more in the United States to any other similar town without leaving an improved road.

The further mileage of State and country roads which are now under construction will make it possible for the traveler to go to any hamlet in the United States over an improved road within the next decade if our present program of construction and maintenance is continued.

To say that it must be continued is to state almost a truism. The greatest service rendered by highway transport is at those periods when productive industry is demanding every transportation facility. Highway transport cannot perform at its greatest efficiency unless it has better roadbeds, and those roadbeds can be maintained under service only by constant effort. Accordingly, while highway development should always be limited to those roads which will pay for themselves through the service they render, it will always be much less expensive for the community to build and maintain such roads than to attempt to go along without them.

In other words, the time has come when we must depart from the conventional idea that because highways are built from tax proceeds



Roy D. Chapin, chairman of the board, Hudson Motor Car Co., read a paper on "Building More and Better Roads"

they therefore constitute a public charge. Instead, they constitute a public investment of first necessity, and in our approach to the subject they should always be treated from that viewpoint.

The problem then is not as to whether we shall build roads, but rather as to how we shall build them, and who is to pay for them. Fortunately research has been going along hand in hand with construction, so that it is now possible to speak with reasonable clearness upon issues which but a brief span of time past were obscured by the fog of ignorance.

It should be evident at the outset that all of the roads cannot be built simultaneously. The first task, then, should be to select those highways, whether they be interstate, state, county or local in character, which are or will be used by the greatest number, and improve them first. This at once indicates the need for a classification of our highways into systems.

In setting up these several divisions, emphasis should be placed upon the need for correlating all expenditures under engineering and economic supervision. There has been a tendency in the past to place road work in charge of a multiplicity of small units, which makes for high overhead costs, lack of uniformity and other elements which add materially to the total expenditure.

The road program is the largest single domestic activity facing our Government and its several subdivisions. The public should and will demand full returns. Political control must be eliminated and the highways must be built and maintained only in relation to the service which they render to the public.

Future Traffic Needs

The order, character and extent of highway improvement should be determined by the relative probable future traffic requirements. No road should be improved unless there is economic or social justification for the improvement. No improvement should be carried beyond a point where the savings to be effected more than offset the cost of the improvement. Once improved, adequate maintenance should be provided to insure both traffic and investment against loss.

In the use of the highway the vehicle operator must not forget that he, too, has a definite obligation. He must not overload nor overspeed, and if he fails to regard the public welfare in either respect, then he must be punished.

It will frequently be found that funds are insufficient for the degree of improvement which is economically justified. Pending the time when this improvement is possible, the highway official should keep the road in as adequate a state of repair all the year round as his funds will allow. In doing so he will be rendering a service not simply to highway transportation but to the community or communities which the highway serves.

When we turn to a consideration of questions of finance, the first point which will appeal to all business men is the need for a highway budget. This should consist of a complete statement of all expenditures proposed for highway purposes in each state year by year, since only with this information at hand can the state authorities hope to arrive at a rational plan of finance.

Necessarily these requirements should be scrutinized in their relation to expenditures for other public purposes, as any program which proceeded at the expense of schools, for example, would be unbalanced. In this service, however, a sharp line should be drawn between appropriations which are to be made from general taxation and those which are drawn from special taxation of the motor vehicle.

As a case in point let me call your attention to the

fact that while the highway funds for 1921 reached more than \$1,000,000,000, but 44 per cent of this was derived from current general taxation. The remainder was obtained either from bonds which will be retired in many instances from motor fees; from Federal appropriations which are far less in extent than the discriminatory Federal excise taxes imposed against the motor vehicle or from direct levies against the motor vehicle user.

Putting it another way, general tax levies for highway purposes in 1921 constituted but 5.3 per cent of the total, national, State and local taxes of \$9,000,000,000, and but 11.6 per cent of the State and local taxes of \$4,000,000,000.

Thus from the standpoint of the country at large it is an utterly fallacious opinion that the heavy increase in general State taxes has been due to the highway program.

Actually, if we could but know the full extent of the savings effected, the increased valuation of land made possible, and similar factors, we would find that the highway program has been returning a distinct revenue instead of operating as a cost charge to the taxpayer.

Once we have a yearly budget before us, then, the next question is how best to levy the charges in a manner which will reflect equitably the relations between cost and benefit.

Influence of Highways

This leads immediately into an investigation of the influence of highway construction, maintenance and use. First in importance come those general influences which directly affect education, health, the national defense, the postal service, rural life, the cost of living; in short, all of the elements which go into modern life in America.

No one who has ever made an emergency call for a doctor will deny the effect of the better highway upon himself, even though he never owns a car. No one who has children who must have fresh milk each day but recognizes the same influence.

Then there are special benefits, such as those obtained, we will say, by the radium industry, which could not operate its carnotite fields in the West without roads over which to get its product to the market. Or we may point to the broadened market of the farmer, or to increased traffic generated for the long-haul agencies of transport, or to countless other special examples.

The man who has land directly alongside the improved highway finds that property held yesterday as agricultural land has today become suburban real estate. Another finds that a trail blazed through to his place has suddenly made it more desirable in the eyes of the investor.

Finally, the user of the highway discovers that as the highway is improved his operating costs have gone down and his range of travel has been increased. It may be that he represents some large manufacturer or some mail-order house, which means that his efficiency has been increased. It may mean simply that the man and his family who own a car have an opportunity for a broadened contact with their neighbors.

Here, then, are presented some of the larger aspects of benefits derived from highway improvement. When it comes to their application it will be found that the program will vary in the several states according to the present stage of development of the system, the comparative traffic needs, relative wealth and other factors.

Safe Rules to Follow

There are some points, however, which can be definitely laid down as sign posts which may be safely followed, and these I should like to quote as the joint expression of committees of the American Association

of State Highway Officials, the Investment Bankers Association of America, the National Automobile Chamber of Commerce, and representatives of the Bureau of Public Roads, whose members have been studying these questions over a long period of time:

a. States in the initial stage of highway development should issue bonds to defer that portion of the annual charge for construction which would overburden either property or the road user.

b. States where original construction programs are well under way can, in the main, finance normal new construction from current funds, utilizing bond issue funds to defer the cost of special projects.

c. States where original construction is largely completed are concerned chiefly with maintenance and reconstruction and should depend on current funds save in cases of emergency.

d. The maintenance of interstate and state highways should be a charge against the road user.

e. Roads serving a purely local purpose will generally require only light upkeep and should properly be a charge against the adjacent property, which in these cases is the first and often the only beneficiary.

f. No road should ever be improved to an extent in excess of its earning capacity. The return to the public in the form of economic traffic is the sole measure of such improvements.

To these may properly be added the statement that the form of the tax on the user is not of major importance so long as it is simple and equitable, as, for example, the horsepower, weight or gasoline tax, any of which is a reasonably accurate method.

The chief principle to be laid down is that taxes derived from road users should be definitely limited by the benefit received and should be used only for the maintenance of the roads used.

Long Term Bonds

As for the bonds to be issued to defray capital costs, these should be long term serial issues, and, needless to say, should carry with them rigid highway maintenance requirements to protect the investing public.

It is hardly necessary to stress the value of continued research such as that now proceeding under the direction of the Bureau of Public Roads, which is inquiring into both physical and economic facts.

Lower Service Costs Will Increase Car Sales

SERVICE, which was mentioned many times during the convention, was discussed by George H. Pride of the Autocar Co., whose subject was "Reducing Maintenance Costs and Increasing Service Efficiency." He said in part:

When the period of extensive development reaches its peak, the nature of optimism of every successful manufacturer has already developed his facilities perhaps somewhat further than the immediate demands require. Immediately thereafter the weaker members in that particular phase of industry begin to go by the board. The stronger ones manage to maintain themselves until the wave again begins to increase and by that time they are so firmly entrenched it is very hard to unseat them and they are set for life.

Now, just as long as industry is in its intensive period of development, the success it attains is due to the fertility of the minds of the men who are developing that industry, but the maintained life and prosperity of that business, once it reaches the intensive period is entirely dependent upon the satisfaction of the people who have already been educated to buy your product. It then becomes a question of reorders to much greater extent than in the first instance, and if you let those reorders go your business cannot continue to grow.

Good Service Essential

The only successful method, as far as I can see, of maintaining a big business, once it is built, is from service. It seems to me that the initial effort of the executive should be an ingenuity and development work. Second, in stabilizing his business, and third, in keeping his business where it was with a very gradual growth thereafter and that can only be done by a very proper observance of service.

It is that particular angle of service that I want to bring out with special emphasis. Many of you don't realize how many concerns have their service departments handled by a man they wouldn't put in charge



Hon. James M. Curley, Mayor of Boston, welcomed the automotive men to his city



George H. Pride, Autocar Co., told how to reduce maintenance costs and increase service efficiency



Harry Meixell, secretary, Motor Vehicle Conference Committee, talked on "Removing Unfair Automotive Taxes."

of any other department. How many firms use as much care and judgment in developing a high-grade executive in charge of their service as they do in any other branch of the business; and yet the branch of service is the business insurance, the thing that insures continuity of your business after it has been developed. What does it get a man to develop a fine business if he then loses it?

Initial sales of any of your products implies in the mind of your customer, whether you tell him or not, whether you will give him service. The average person who purchases anything any of you people make, purchases now with the realization that he only gets the inception of what he buys; to keep that intact and give him continual service of the character he expects means that he must have parts to replace it and keep it in proper working order.

Prices Should Be Reasonable

The price of these parts should be reasonable. The more reasonable they are the more interested he is in your product. There is a great mass of users, particularly of motor trucks at the present time who realize that the initial cost of a car is not the biggest determining factor; it is the cost of keeping the car after he has got it.

I sometimes think that you gentlemen should consider this service just as much a part of your obligation as you would feel if a company made a large commitment with you and then regardless of what conditions were, if conditions went bad, failed to make good on it, you would dislike that, and yet when you fall down on service you are doing exactly that to your purchasers, whether they are direct or indirect. A duplication of service facilities is economic waste reflected in the purchase of the parts the customer buys. There should be no duplication so far as possible and still conform with good business.

The company that renders the best service in the long run will outclass their competitors regardless of the fact that the competitors may have some little improvements that are better, but the service is the best. The continuous use is the real thing the purchasers buy.

States Alone Should Make Tax Levies

It was Harry Meixell, secretary of the legislative committee of the N. A. C. C., who told of the new program agreed upon by the Motor Vehicle Conference Committee. He read the taxation platform agreed upon, as published in *AUTOMOTIVE INDUSTRIES* last week, and then told briefly of the difficulties encountered in operating through State sub-committees which were not always alive to the needs of the situation or of the attitude of motor vehicle interests in respect to taxation and legislation. He urged the M. A. M. A. members to cooperate by directing their representatives to serve on State committees when requested to do so in order that there may be intelligent, continuous and energetic action as well as fair and unbiased information for the benefit of legislators who, generally speaking, are earnest and hard-working men. Meixell said in part:

The imposition of special taxes on the motor vehicle has developed three distinct theories on the subject of highway financing.

The first contends that highway transport, being of

the same nature and importance as public education, police and fire protection, etc., should be taken care of entirely by general taxation levied upon society-as-a-whole in accordance with the ability of its individual members to pay, and not with reference to the amount and intensity of the use and benefit which any one of such individuals may obtain from improved highways. In other words, it regards special levies on the motor vehicle as uneconomic and unfair.

Second Theory Is Extreme

The second theory goes to the other extreme and insists that society-as-a-whole should not in any way be subjected to taxation for the construction and maintenance of improved highways on the ground that the performance of this governmental function results exclusively to the benefit of the motor vehicle owner and user. The theory holds that the motor vehicle owner and user should pay special taxes to cover the entire burden which, as has been pointed out for the year 1923, will aggregate more than a billion dollars.

The third theory, and the one which is steadily gaining ground all over the country, maintains that society-as-a-whole, which includes both the owners and non-owners of motor vehicles and motor vehicle owners and users as a separate and distinct class, should share the total burden of taxation needed in any one year for improved highway construction and maintenance. It is further contended that society-as-a-whole should pay general taxes for the capital investments necessary to construct improved highways and that the motor vehicle should be called upon to pay these special taxes which are to maintain them.

Multiplying of Taxes

Since the Federal Government and State Governments have inherent rights to tax motor vehicle owners and users, and furthermore, since in some States there has been a tendency to delegate to local government certain powers which enable them also to levy special taxes, it is highly essential to insist in the interest of fairness that all special taxes on the motor vehicles should be levied exclusively by State Governments. For three jurisdictions to seek revenue from this field is bound to result in total demands which are excessive.

Not only is it unfair for more than one taxing jurisdiction to enter the field of special taxation, but it is also inequitable and uneconomic for a State to make the grand total of such special taxation greater than the sum necessary to maintain its capital investments in improved highways. Special tax demands in excess of this amount are sure to hold back or check altogether the logical growth and development of transportation within a State.

Mayor Curley greeted the convention with a notable plea to American cities to provide adequate traffic lanes for motor vehicles. The substance of his address was printed in *AUTOMOTIVE INDUSTRIES* last week.

Nelson Oliver Speaks

After the formal speeches Nelson Oliver, president of the Automotive Equipment Association, was introduced by General Manager M. L. Heminway. He greeted the members of the M. A. M. A. as fellow manufacturers and then appealed to them to take full advantage of the possibilities for profit to be found in the "make it an automotive Christmas" campaign. He declared that an automobile makes the best Christmas gift and that automotive equipment comes next.



E. P. Chalfant, chairman of the board, Gill Mfg. Co., discussed "The Advantages of Selling Both the Dealer and the Jobber"

Ezra W. Clark, advertising manager, Clark Equipment Co., presided at the session on advertising.

M. L. Heminway, general manager, Motor & Accessory Manufacturers Association

J. P. Maloney, general field sales manager, Pyrene Mfg. Co.

Varying Views Brought Out in Discussion of Jobber Problems

Practical suggestions made in talks on marketing methods. Two speakers provide basis for constructive debate. Function of wholesalers defined by Chalfant. Sherman talks on selling.

THOUGH venturing into a new field, the M. A. M. A. did not indulge in any aimless wandering when the Boston convention undertook study of distribution through the jobber. A minority, probably, of the manufacturers present were thoroughly experienced in selling through jobbers, another group had done some jobber business but the majority either were without experience in cultivating the replacement market or had obtained distribution largely through direct sales to dealers and maintenance men. For an organization that has devoted its thought mostly to dealings with motor vehicle manufacturers rather than automotive equipment merchants, the association carried out a remarkably practical program of discussion of the jobber's place in the system of marketing.

The convention of course could not draw any conclusions as to the most efficient channel or channels of distribution, because of the varied nature of the products represented, but a wealth of ideas and thought stimulating suggestions were brought out. There were only two speakers but the discussion which followed their remarks brought more than a dozen men to their feet with comments and experience stories that proved of value, particularly to the newer manufacturers in the group and to others who have only recently gone into the replacement market.

B. M. Asch of Asch & Co., manufacturers' agent of New York, who presided, expressed the view that the association should have injected itself before this into study of the problems having to do with development and education of wholesale and retail channels of distribution.

He suggested that all the national associations of the industry, specifically naming the M. A. M. A., the National Automobile Chamber of Commerce and the National Automobile Dealers' Association, ought to work out a means of co-operation in trade education, which he said had been practically undertaken by the Automotive Equipment Association in its merchandising, or "Ask 'em to Buy," campaign. Asch contended that while cultivation of vehicle manufacturers and distributors and the motoring public are proper supplemental means of widening the market for equipment products, the big task is education of the retailer as to the use and worth of products and effective methods of merchandising them. In this work, he pointed out, the co-operation of the jobber or some other wholesale distribution agency is essential.

A Rare Treat

The convention was given a rare treat in the paper of E. P. Chalfant, chairman of the board of the Gill Mfg. Co., piston manufacturer, whose subject was "The Advantages of Selling both the Jobber and the Dealer." The speaker first presented a thorough analysis of the nature of the industry's equipment products, which he divided into a technical and a non-technical group, then he showed how, in his opinion, the former group needs the merchandising ability of specialty distributors, while the non-technical group can be most economically handled through the general jobber.

A large part of Chalfant's paper is printed on the following pages.

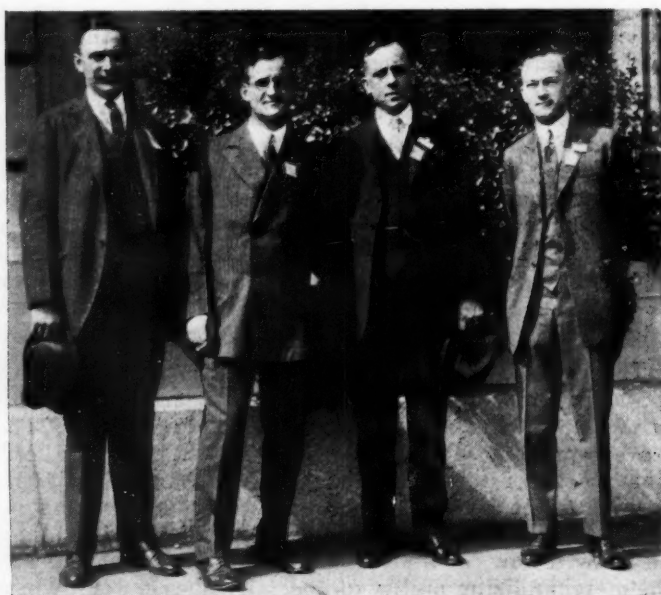
Chalfant's talk drew forth ample support of the gen-

eral automotive equipment jobber as the most efficient and economical distributor yet developed for all classes of automotive products. If the jobber is going to continue serving the trade by distributing the staples on which profits are limited, like the grocer's profits on sugar and salt and soap, one speaker contended, he ought to be given the opportunity of making the large profits that go with the more specialized products. Another speaker condemned the practice of using specialty jobbers to develop a market for a specialized product, after which their profits are curtailed by extending distribution privileges also to general jobbers. L. A. Safford of the McQuay-Norris Mfg. Co. and E. V. Hennecke of the Moto-Meter Co. upheld the efficiency of distribution through general jobbing channels but, like virtually all other speakers, conceded that differences in products called for different distributing methods.

Long Discussion

The discussion ran on for upwards of an hour, and a great many members who did not take part in the discussion made notes.

Closer scrutiny of sales promotion through the jobber resulted from the address of Ray W. Sherman, business counsel of The Class Journal Co. and former merchandising director of the Automotive Equipment Association. Reminding his audience that "the perhaps unnecessary accessory of today is tomorrow's car equipment," he traced the development of distribution as it paralleled the development of design and production. The blacksmith became the garage-man and the heavy hardware jobber the automotive equipment wholesaler; the bicycle dealer and bicycle jobber together came into the automotive field and so did the liveryman and the saddlery jobber; then along came the exclusive automotive jobber. It has been natural, Sherman explained, for the industry to use these existing agencies of distribution and to follow tried and proved methods, which are more economical than the building of new agencies and methods if they give satisfactory service. He cited accomplishments of certain jobbers in support of a contention that many manufacturers are getting satisfactory results from jobber distribution, referring particularly to the selective distribution methods followed by some manufacturers and jobbers.



A part of the M. A. M. A. Boston Committee:
W. M. Lorenz, F. T. Moore (chairman), J. P.
Hatch, H. K. Johnson

Factory Branch Aids Jobbers in Selling

CHALFANT said in part:

For the purposes of this discussion, motor car accessories, equipment and replacement parts will be divided into two classifications, namely, technical and non-technical, and for convenient reference I will term them Class A and Class B respectively.

Class A comprises principally those parts or units which are not exposed to the eye of the individual owner, therefore whose functioning is usually either vaguely known or entirely unknown to him. Because of their special or highly technical construction or duties, the selection and installation of Class A parts or equipment are made by service stations, repairshops or regrinding shops, who therefore are the consumers. In this classification will be found ignition parts, gears, bearings, bushings, springs, motor parts, such as pistons, pins and rings; also brake and clutch linings.

Class B comprises principally those articles of equipment or replacement which are visible to the individual owner, are generally understood by him, and whose comparative merits or benefits have been made known through national and local advertising or the favorable opinions of other car owners. In this instance the individual owner is undeniably the ultimate purchaser by selection, therefore the consumer.

Class B comprises such units of equipment as bumpers, spot lights, stop lights, lenses, windshield cleaners, sun shields, slip covers, trunk racks, lubrication systems and radiator covers, and numberless specialties; also such replacement parts as tires, fan belts, spark plugs, lamp bulbs, etc.

Jobber Chief Distributor

The first and paramount distributing power is the jobbing house, whether national or sectional in its activities. Second, and of rapidly growing power, is the specialty jobber, which classification can well be construed to include the factory representative or distributor. Third, and of potent influence in developing a market yielding a well-balanced and constant demand, is the factory branch. Fourth, and of unstable value to the manufacturer, is the mail order house. Fifth, and ordinarily of short life, is distribution solely through advertising and mail to consumer propaganda.

The first three of these classifications depend for their existence upon selling at wholesale the products they handle, to those concerns who in turn resell to, or install for, the consumer. They are the subjects of this discussion.

Assuming that each of the three principal classifications are legitimate and profitable channels of distribution to reach the ultimate consumers, what are their respective potentialities; what types of merchandise are each best equipped to distribute; what types of merchandise should be distributed exclusively through one or the other of these three classifications, and of paramount importance to the object of this discussion, to what extent can these three classifications harmonize their activities and transact business one with the other?

To deal intelligently with these complex questions it is first necessary to define the scope and the functions of each classification. First and foremost, what constitutes a "legitimate jobber," and what association or group of merchants is empowered to standardize and enforce the requirements of legitimacy?



Charles H. Burr, treasurer, S K F Industries

D. M. Gardiner, supervisor of sales, North East Electric Co.

M. A. Moynihan, secretary and treasurer, Gemmer Mfg. Co.

L. L. Smith, assistant treasurer, B. F. Goodrich Co.

C. H. Pomeroy, treasury department, National Malleable Castings Co.

Is it not sufficient for the manufacturer's guidance to determine that a jobber is legitimate and entitled to maximum considerations when he establishes proof that he sells solely at wholesale; that he sells only to the trade entitled to receive discounts; that one or more members of his organization consistently and at relatively regular intervals visit the trade within the territorial boundaries of his activities, and that he properly distributes the advertising propaganda of the manufacturers whom he represents, irrespective of whether or not he publishes or compiles a catalog of his own? This seems the logical definition of a jobber from the manufacturer's viewpoint, but he stands willing to be governed by any other reasonable definition that will be nationally standardized and applied by a governing body.

The jobbing house has undeniably the widest, soundest and safest distribution of all non-technical products that can be included in Class B, and is entitled to all the safeguards of exclusive privilege contracts which are mutual in their obligations. Jobbing houses seek to, and ordinarily are successful in employing salesmen of ability and aggression, and with a well-defined knowledge of motor accessories and their utilities. But seldom is the jobbers' salesman a technically trained specialist, nor is it essential that he be, because he must impartially present to his trade some two or more thousand different articles listed in his catalog. Therefore he has no time to devote to technical and scientific discussion.

Demand Created

Consequently, the Class A products sold by the jobber's salesman are in the main to customers with whom the demand has been previously created through other and more specialized methods. This statement immediately brings us to an analysis of specializing.

The specialty jobber or factory representative daily becomes a more and more powerful factor on the distribution of Class A products. He limits his activities to merchandising from five to fifteen non-competitive articles of special merit or popular demand, the majority of which are usually replacement parts of a technical character. His salesmen are highly trained specialists familiar with the minutest manufacturing processes, functioning benefits, and comparative merits of his products. He is educated to the language of the repair shop and he is able and eager to discuss and help solve all

the technical and multitudinous problems of the mechanic.

Having but a few products to sell, he has the time and the intelligence to sell them completely, and to create the lasting belief of the shopman that at least some of his products are superior to, or more profitable than others of competitive make.

Exclusive Agents

The special jobber of necessity stores a larger and more diversified stock of each of his products than would the jobbing house, because his existence depends upon his ability to give quick service to his trade, and service means giving the shopman exactly what he wants when he wants it. The shopman invariably has limited space for his repair jobs, and he cannot afford to have a valuable space occupied by an idle job awaiting delivery of some article or part, which properly should be delivered to him within twenty-four hours from the time he orders it.

The specialty jobber is sometimes but not always, the exclusive distributing agent of the manufacturer in a definite territory, and as such, and in consideration of his large stock and his highly trained salesmen, he is entitled to discounts and concessions which should enable him in turn to sell profitably to jobbing houses, and then to give them educational cooperation.

Owing to his inability, however, to get all of his products on this exclusive basis, he must round out his lines by taking some products on the same basis of discounts and terms as are given the jobbing houses, consequently he must sell them direct to accessory dealers and repair shops, thereby arousing the opposition and resistance of the jobbing houses, who regard him a competitor instead of a supply depot. Doubtless this condition is responsible for the refusal of the jobbing houses as a class to acknowledge the "legitimacy" of the specialty jobbers as a class.

It must be admitted, however, that the specialized activities of the specialty jobbers create a broad and popular demand for many non-exclusive products, which enables the salesmen of the jobbing houses to fatten their orders from customers who would not otherwise be in the market for these products.

This essay now arrives at the third, and to its author the most vital of the three principal classifications, the one to whose development his personal activities have been long directed. Reference is made to the factory

branch, which too frequently is the bone of contention between the manufacturers, and the jobbing houses and specialty jobbers, who merchandise his products.

What is the basic purpose of a factory branch and what should be its selling limitations?

Let it be understood that factory branches are not generally profitable and that the manufacturer with limited capacity or who can be contented with moderate volume had far better confine his distribution to jobbing houses and specialty jobbers. But in these days of scientific and aggressive competition, the manufacturer who cannot show an annual increase in production is trodden underfoot by his more progressive competitors and shortly fades from the picture.

This is particularly true of the highly technical products comprised in Class A. Their popular demand is founded upon the education of the shopman as to functional merits plus excellent profits, and this process of induction must be faithfully maintained by trained men. Behind this demand must be the bulwark of complete service stocks subject to call. The shopman cannot anticipate his requirements, nor is he financially able to carry the burden, hence he purchases his replacement parts from day to day to provide for each individual job.

Increasing Efficiency

The service station, the fleet owner and the regrinding shop can save time and increase efficiency by maintaining small stocks of parts in standard sizes, but cannot provide for the unusual conditions which constantly arise. Hence the progressive and aggressive manufacturer builds his organization of factory branches and in order to control their policies, they are customarily owned by the parent company.

The overhead of maintaining a factory branch is a factor to be reckoned with, but the end justifies the means.

It is a safe estimate that a fully equipped factory branch serving efficiently a large territory requires an annual budget of \$12,000 to \$30,000. To cover the United States thoroughly, from fifteen to forty branches must be established in strategic business centers, and this does not include occasional sub-branches.

And with what purpose and result? The concentrated work of a corps of technical salesmen combing every avenue of sale builds a steady demand from the con-

sumer straight back to the branch, through the mediums of the shopman, the garage, the fleet owner, the service station, the local accessory dealer and the jobber. In short the business is built from consumer to jobber—positively, instead of the usual procedure of jobber to consumer—perhaps.

The prime object of a properly conducted branch is to give its trade maximum turnover with minimum investment, and to aid in reducing the average overhead of the customer, by means of delivery at destination, also by the elimination of handling expense by shipping the customer's orders direct to his trade.

Rapid Turnover Desirable

The jobbing house is indeed fortunate that can make an average turnover of four times per annum, and at an average overhead of 20 per cent based on selling prices. Any product that cannot be turned three times per annum and yield a gross profit of 30 per cent deserves no place in a jobber's establishment.

Turnover is the jobber's big problem, therefore, how truly cooperative is the factory branch which carries on its own shelves the big diversified stock and shoulders the main expense of territorial development and expansion.

How much more sensible and profitable for the jobbing house to put its sales efforts behind a product whose factory branch can make possible ten to twenty times turnover of a minimum service stock representing a nominal investment.

It must not be overlooked that establishing a factory branch in an important business center does not necessarily mean that all or any of the jobbing houses in that particular territory will rally to the support of the branch and throw overboard well and favorably known competitive products which already have a developed demand.

A factory branch will then find it necessary to build its own clientele by selling direct to tradesmen and shopmen.

No manufacturer of accessories or replacement parts should feel, however, that he can afford to leave the jobbing house completely out of his merchandising program, for many and obvious reasons. Therefore it is of paramount importance that their respective policies should be harmonized each with the other and that a spirit of confidence and fair play should prevail between the two.



H. M. Sloane, president,
Buda Co.



Edward S. Fretz, president
and general manager,
Light Mfg. & Foundry Co.



Charles E. Thompson,
president,
Steel Products Co.



B. M. Asch, president,
Asch & Co., presiding at
the distribution session

Cost of Distribution Should Be Reduced

PART of Sherman's speech follows:

The automotive equipment manufacturer looks down at a market of 12,000,000 automobiles and he sees a distribution system that is established. At the top we have a manufacturer; then comes the wholesaler, the jobber, or whatever you choose to call him, and the dealer, and at the bottom the 12,000,000 consumers. We want to get our merchandise down through here and into this market, and we are very much concerned as to the best way in which to do it.

That is the structure which we found we had in existence when we got through building a marketing system, and that is where it stands today.

Sometimes a manufacturer will view this field and will see merchandise similar to that which he himself makes, moving through these channels. He goes out to try to fit his own product in, and for some reason or other he has difficulty. He has a chance for a man to make an error and also a chance to discover something new and do a better job than anybody else ever did before. But because of a resistance, instead of going through and establishing himself through tried channels of distribution he tries a variety of other methods.

The people who have talked tonight, particularly Mr. Safford and Mr. Chalfant, have done that thing which in my opinion is essential. Instead of doing an unusual amount of experimenting with new, unknown, untried methods, they have found out the things which have in some cases proved successful and they have done those things. I don't believe there is a distribution problem in the industry which at some point or other, in some isolated case of other, hasn't been solved by somebody. The way to do the thing has been found out.

Study Business Carefully

Consider your own business in this way: Study your volume and your increase in the industry and the increase in your number of competitors, and see if you are sharing with other companies, new entrants into the field, the increasing business of the industry to an extent greater than perhaps is justified.

I stopped in a manufacturer's place of business out West the other day. He has twenty-four jobbers and is selling more merchandise than he ever sold in the history of his business.

I know other manufacturers who have six or seven hundred jobbers and sometimes when they check the thing up they find that this multitude of jobbers constitute the chief trouble with their business. What you want is people to get behind your merchandise and sell it. If somebody will do that, the stuff can be sold, provided it is any good; and if it isn't any good, then you ought not to be in the business. If every one will get behind the jobbers and dealers, the merchandise can be moved in quantities.

One inducement that has proved effective in the automotive field is the limiting of the jobber list. The man with twenty-four jobbers is an extreme case, but any man who has five or six hundred jobbers, if he figures out what percentage of his jobbers are giving him seventy-five per cent of his business, will probably find that he can discontinue at least thirty per cent of his accounts without making much, if any, difference in his sales.

Some people can do that; some cannot. In some cases

I would strongly recommend it; in other cases I would very seriously question it. But that thing which Neal Adair of *Motor World* has so aptly termed "Selective Distribution" is a very big thing to think about at the present time. Here are a couple of typical cases.

A certain manufacturer is operating on these lines: His customers must declare that they are ready to handle only his line and no other competing line or items that would be called competitive, and they must not show anything else in the catalog. They must take a fairly comprehensive line, including the various sizes and items that he makes, and their credit must be unquestioned.

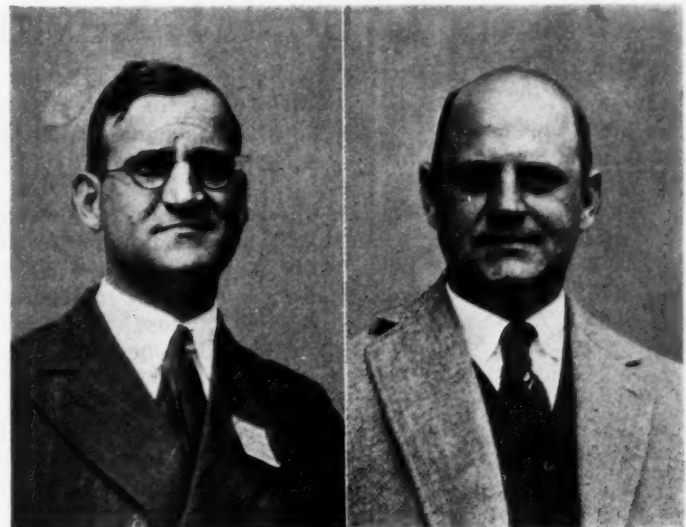
Helping the Jobber

When this manufacturer finds a jobber of this kind he gives him preferred shipments over everything else, excepting replacement orders and promotion orders. He furnishes samples, photographs and circulars for the salesmen of the jobbing house; he goes down and addresses the salesmen of the jobbing house at stated intervals, in order to show this jobber's salesmen how to sell the stuff to the dealer and teach the dealer how to sell it, and has his factory representatives travel with the jobber's salesman on the road, teaching the latter to be a teacher.

We have to expand through some form of distributive organization. You can't build a big system yourself except at a tremendous expense, so the economical way in which to do it is through a jobbing organization.

In many cases the cost of merchandise in the business to the consumer is too high. That is something to which we should give serious consideration. We cannot go ahead and trim discounts today because distributing costs are too high. On a great many items in this field which I have checked, you have to multiply the manufacturing cost by anywhere from four to five times in order to get a proper retail price.

There aren't many ways in which you can cut the cost of doing business. The jobber cannot fire all his men; he cannot have a smaller building, and there are many things he cannot do. One thing which the jobber and the dealer have to learn, however, is the lesson of volume and turnover. They all need to learn so many things that an awful lot of educational merchandising and business information will have to be poured down into this distributing system if we are ever going to make out of it the thing that we want.



Fred T. Moore, chairman
of the M. A. M. A. Bos-
ton Committee

E. V. Hennecke, general
manager Moto-Meter Co.

Trade Acceptances Are Much Abused, Credit Men Say

Generally agreed that such instruments should not be accepted for anything except a current account. Session also considers procedure in bankruptcy cases. Creditors meetings discussed.

USE and abuse of the trade acceptance seemed to arouse more general interest than any other theme considered at the credit session, one of the snappiest of the entire convention. The practice of some manufacturers of granting a cash discount of 2 per cent. on such paper was characterized as little more legitimate than such a discount would be on a note.

Some of the credit men who joined in the discussion said trade acceptances usually were offered for due or past due accounts and it was generally agreed that such instruments never should be accepted for anything except a current account, upon which payment was not yet due.

Other subjects of major importance, even if rather gruesome from the viewpoint of a credit man were:

"When to Call a Meeting of Creditors," by O. W. Myers, district credit manager of the Goodyear Tire and Rubber Co.

"How to Proceed in the Event of Bankruptcies and Receiverships," by Sidney S. Meyers, general counsel of the M.A.M.A.

It was the contention of Myers that the statistics revealed in balance sheets of creditors must be studied and that when the volume of past due accounts reaches dangerous proportions meetings of creditors should be called immediately because delay means dissipation of assets.

Sidney Meyers' address was characterized by the credit managers as a text book on an intricate subject which shed much new light on the obligations and rights of creditors.

Credit Evils Frankly Discussed by J. I. Nevin

THE trade acceptance evil was dragged out into the open by J. I. Nevin, assistant treasurer of the Moto-Meter Co. in his paper on "Credit Granting Problems in Selling the Jobber," in which he said in part:

One of the items on the liability side of a balance sheet that rather annoys a credit man is the matter of trade acceptances payable. This item, like a bad child, was born amongst good wishes, but rather carelessly raised. Trade acceptances payable almost invariably represent extended accounts and should come under the same classification of notes payable.

Perhaps the reason of this is the fault of the manufacturer selling the jobber. Perhaps it is the ability of the jobber to compel the manufacturer to finance him rather than have the banking institutions take care of his needs. In any case, this worthy paper is very much abused.

Practically all of the trade acceptances offered our company are in settlement of past due accounts, and despite

assurances to the contrary, it is practically certain that with very few exceptions, this item represents past due accounts. A large part of this may be directly traceable to the encouragement offered by manufacturers to the jobber, permitting the deduction of cash discount from accounts paid by trade acceptance. Whether or not these manufacturers have benefited by this procedure is a matter of conjecture.

One thing is certain. It has reduced the jobber's respect for the cash discount. He feels that he is entitled to this discount because he sends in a trade acceptance where he formerly sent a note.

Discount Becomes Premium

The cash discount thus becomes a premium for placing the account in more liquid shape rather than a premium for anticipated payment and leaves the manufacturer in the position of paying for something that he doesn't get; namely, the use of cash before it is actually due, and a real credit check on the financial position of his customer. The argument against this from the jobber's side is that the manufacturer does have the use of his money through the discounting of the trade acceptance, which, of course, is true; but it places the manufacturer in a position of paying 2% discount for a paper that he in turn is going to discount at his bank, instead of using his own note, which doesn't cost him anything, and he in addition assumes a contingent liability on all of the outstanding trade acceptances.

This contingent liability should not be underestimated. It means that where a jobber has purchased his requirements on a ninety-day trade acceptance, that he has received four months' supply of merchandise before being called on to pay for a single lot, and while it will not, of course, mean great failures, it certainly will mean a greater average percentage of losses per failure, through this method of settlement.

From the manufacturer's viewpoint, this may be offset by increased distribution, but this would depend entirely on the manufacturer's percentage of profit on sales and the relation of this profit on the increase of sales directly attributable to this policy to the additional losses sustained. This is, of course, almost impossible to estimate. Generally speaking, however, the manufacturer who allows the discount from a trade acceptance, is going to be paid in trade acceptances, while the manufacturer who insists on cash in return for cash discount is going to be paid in cash, and the final result is that the proportion of cash which without the trade acceptance would ordinarily go to the house accepting trade acceptances, goes instead to the house that asks for cash.

With a prospective account that will run into considerable volume, it is customary to secure the experience of other houses selling the prospect. These are given by the prospect himself, and of course it would hardly be probable

that a prospect desiring a large line of credit is going to give as reference houses other than those with whom his paying record is good. It is reasonable to assume that where a jobber has a consistent discount record with a dozen or so manufacturers that his account is a good credit risk, but we must consider the fact that this discount record may be the result of a manufacturer's ultimatum to a jobber to either discount or pay cash. Such a condition is not uncommon, considering that it is advisable for merchandising reasons for a manufacturer to make his line as attractive as possible to the jobber. It is, therefore, much preferable to use a little pressure to compel a jobber to discount rather than to ship him on a cash basis. Of course, if circumstances do not warrant any extension of credit whatsoever, there is no choice in the matter, but there are few cases where a basis of limited credit cannot be made mutually satisfactory.

Credit Data Accurate

It is at this point that our good Association steps in with all the news, both good and bad, and frankly, the information going to the association is generally unbiased and complete. It is given out by men with whom we are in constant personal contact, who realize that an error in properly disseminating acquired information on their part may be instrumental in causing considerable loss to a member, and who take a personal pride in the accuracy of their work, rather than the mechanical copying of correct or incorrect information for general distribution, cloaked in noncommittal language, as is so often the case with mercantile agencies.

In highly competitive lines it is not unlikely for a jobber to purchase up to the limit of his credit allowance and then turn to a competitive house for his additional requirements rather than discount. Such a condition should be overcome by the credit department.

The credit man should try to sell the customer the advantage of discounting his purchases and where a credit man approaches his customer as a friend, offering financial advice, and points out the direct loss through failing to take advantage of cash discount, the jobber will almost invariably be glad to listen. If this method should fail, it would be to the advantage of the competing manufacturers to get together and arrive at some basis of understanding as to how this particular job should be handled. This

can readily be done through the Association, and when the jobber learns that he can no longer take advantage of the fact that his sources of supply are on a competitive basis, somebody is going to have a customer who will pay his bills.

Industry Is Young

The automotive industry being comparatively young, we find that, generally speaking, the jobber has not become as thoroughly efficient as in the older lines of distribution. This does not, of course, apply to the old line hardware jobber, or saddlery house, who have added automobile accessory departments to their established institutions.

There is still a large number of jobbers doing rather a large percentage of retail business. The reason for this is probably the fact that these particular jobbers find their retail trade so profitable that they dislike to discontinue it. While they are probably justified in some instances, the retailing and wholesaling of the same commodities are not as closely related as they outwardly appear. Retailing requires entirely different methods of merchandising, high rent display rooms, local advertising and other features that are unnecessary in the jobbing business. The jobbing end, on the other hand, requires road salesmen, larger inventory investment, etc.

The only real advantage in the operating of both retail and wholesale departments is, that the single investment of merchandise the jobber carries is sufficient to take care of both branches of the business. This, however, can be offset by the fact that the cost of rental in higher priced locations must be borne by the wholesale department as well as the retail department, so that the cost of the wholesale operations are considerably increased, owing to a condition from which that department derives no direct benefit. It is also true that the retailer will favor the jobber who has no retail department, as he can hardly be expected to sanction competition himself.

Concentrate on Wholesaling

That jobbers are recognizing these facts appears to be indicated by the number of jobbers who have given up their retail departments, and of course eliminated the tremendous overhead in conjunction therewith. By doing so he concentrates on his wholesale department, creates a goodwill that he otherwise could not have, and operates his business on the smallest possible cost commensurate with



J. I. Nevin, assistant treasurer, Moto-Meter Co., who discussed "Credit Granting Problems in Selling the Jobber"

O. W. Myers, district credit manager, Goodyear Tire & Rubber Co., read a paper entitled "When to Call a Meeting of Creditors."



a properly conducted jobbing business, and thus builds for himself a permanent business. In addition, he is placed in the position of being able to ascertain his actual cost of wholesale operation. This enables him to choose his method of operating, which of late has developed two distinct types of jobbers,—the one who concentrates a few profitable lines, eliminating the less profitable as far as possible, and the one who handles everything his trade requires, depending on volume to cut his overhead.

Advantages Outlined

Each of these methods has its advantages. The few lines, large profit method naturally means smaller turnover with larger gross profit, and the other method smaller gross profit with larger sales. Which of the two methods will prove the more satisfactory is at present a matter of opinion, but in any case, the result of these different methods should be interesting enough to deserve considerable attention on the part of the credit man.

Another feature that deserves commendation is the movement that developed as an aftermath of the "Ask them to buy" movement,—that is, the "Ask them to pay" campaign. This movement has been just as successful as its predecessor. I have also noticed in the last few days, where the jobbers of a particular section have organized a credit association, that in addition to its regular duties, have been circularizing the local dealers on the advantage of living up to the terms of sale of their sources of supply. This is bound to have good results to the jobber, and in addition, it paves the way for the manufacturer to carry on his campaign of teaching the jobber in turn that he must respect the terms of sale on which he purchases.

Asch Opens Discussion

The discussion was opened by Ben Asch of New York who asked Nevin to elaborate his contention that the credit man and the salesman should work in the closest cooperation.

Nevin responded with the statement that the problem of the credit and sales departments are virtually identical.

"The salesman knows his customer," he said. "As a rule he isn't going to suggest to his house that they sell a customer who isn't going to prove satisfactory. He knows the come-back. The credit man naturally has to take into consideration the salesman's viewpoint, and his viewpoint, as a rule, is pretty nearly right. The credit man can't be expected to sit back and read a few reports from some commercial agency or something of that kind and lose sight of the fact that the order has been sent in by a salesman who knows the customer and who knows something that the credit man can't learn from reading the report. He knows something about the man's character, and character is the one big thing that makes a jobber either worthy or not worthy of credit."

Asch thoroughly agreed with this point of view and held that "any credit man who doesn't listen to his sales department frequently loses a good bet for real business."

Roy S. Harvey agreed with Nevin's argument about cooperation, because the man on the firing line undoubtedly can get information which is not available to the credit manager. He contended also that there should be close cooperation by members of the association to eliminate the practice started by many jobbers of giving trade acceptances, which really are a form of note, less a cash discount. He held that if some members permitted such a procedure it would be difficult ever to stamp it out entirely.

"We haven't done it," he said, "and we think it a vicious practice which ought to be stopped as quickly as possible. It can be stopped by this association sooner than in any other way."

E. V. Hennecke of the Moto-Meter Co. asserted that every department in an institution should coordinate to the fullest possible extent, and he attributed the success of his company to the fact that the entire organization always had worked harmoniously.

L. M. Allen of the Bridgeport Brass Co. said it was surprising to him that there still are so many people who will try to give a trade acceptance in payment of an overdue account. When a creditor accepts that paper he helps destroy the fundamental principle back of the trade acceptance idea.

"I think one of the best things we can do at this session," he said, "is to go on record as a body to the effect that we, as members of the M.A.M.A., will absolutely refuse to take trade acceptances in payment of due or overdue accounts."

Salesmen as Credit Men

Harvey re-entered the discussion at this point to say to those who might feel that salesmen didn't make good credit men, that no salesman ever started on the road for his company without spending a couple of hours in the credit department where he was taught some of the things that would be helpful to him and the company. In that way he learned exactly what kind of information to send in.

H. M. Sloan said the Buda Co. went even further in this respect by the preparation of a form furnished the sales department in which men on the road are told exactly the kind of information wanted in regard to customers.

Lew Safford asserted that he couldn't see how anybody could send out a salesman without training in relation to credits just as much as on the quality of the goods, discounts and prices. He said his company had an intimate knowledge of each one of its accounts and that when one of them gets into trouble an executive of the company gets on the train and goes out to learn what is the difficulty. He thought the trade acceptance highly valuable provided it is properly used.

In the discussion of O. W. Myers' paper, E. S. Fretz of the Light Mfg. & Foundry Co. contended creditors should be guided largely by the reports of the Credit Dept. of the M.A.M.A. in determining when to call creditors' meetings. As soon as there is evidence of trouble a representative of the department should make a careful investigation and creditors should be guided by his recommendations.

Creditors Should Act Quickly

Fretz contended creditors should get on the job early before companies which become involved are so far gone they can't be saved. By early action creditors' committees almost always can save embarrassed companies if the work is placed in the hands of the right type of committee.

M. Moynihan of the Gemmer Mfg. Co. pointed out that small creditors are prone to follow the lead of big ones whose judgment is not always good. Inability to pay accounts promptly usually means that something is wrong with the conduct of the business. Past due accounts frequently are permitted to run along month after month until a large part of the assets are dissipated. Meetings of creditors, he held, should be largely automatic. A theoretical red line should be drawn to show when past due accounts have passed the danger mark. When this point is reached a meeting of creditors should be called at once. He objected to the term "creditors' committee" and favored advisory council or special investigating committee, because as soon as it is noised about the creditors have taken charge the business of a concern suffers an immediate collapse.

Sidney Meyers urged each manager to make the following resolutions:

"First, that he will never accept an offer of composition solely on the recommendation of the attorney for the bankrupt, even though the offer looks good to him.

"Second, that he will never accept an offer of composition until he is fully acquainted with all the facts which have been checked up by some competent person who has only the interest of creditors at heart.

"Third, that he will always insist upon a thorough examination of the bankrupt before signing an accept-

ance, if he is at all suspicious of the situation.

"Fourth, that whenever possible he will act in accord with other unsecured creditors, and preferably through a creditors' committee.

"Fifth, that in cases where fraud is suspected, he will bear in mind that the laborer, or lawyer in this case, is worthy of his hire and to get the best of service he will let the lawyer know that he will be paid a reasonable fee irrespective of results."

Big Attendance at Export Session Shows Greater Interest in Foreign Trade

Many companies planning to seek overseas business. Attitude changed considerably since last year. S. W. Dorman, F. E. Titus, and J. F. Kelly give practical talks on how to get the business.

FOR the first time since the M. A. M. A. was founded one of the general sessions of the convention was devoted to a discussion of foreign trade and the place of the motor and accessory manufacturers in the expanding overseas trade in automotive business. A group meeting was held at the Buffalo convention last year but the small number which attended indicated little interest in export by members of the association. Since that time, however, a Foreign Trade Committee has organized and a determined effort has been made to draw attention of the members to the sales development in this field.

The general export session at Boston, which drew a heavy attendance, may be taken as proof that the member companies are now giving serious consideration to the business possibilities of the foreign field and, likewise, that actual shipments of accessories and equipment are moving in goodly volume to those countries of the world which are purchasing some 300,000 American cars and trucks this year. Executives and officials of various companies said, both on the floor of the meeting

and in conversation outside, that export programs are being commenced or planned to commence in a few months. This is almost a complete reversal of the condition that existed only a year ago.

Speakers who participated in the export session were E. P. Chalfant, chairman, Gill Manufacturing Co.; John F. Kelly, Jr., export manager, Electric Storage Battery Co.; F. E. Titus, vice-president, International B. F. Goodrich Rubber Co.; S. W. Dorman, vice-president and general manager, Overseas Motor Service Corp.; L. M. Wainwright, president, Diamond Chain and Mfg. Co.; M. H. Hoepli, acting chief, Automotive Division, Bureau of Foreign and Domestic Commerce; Nelson H. Oliver, president of the Automotive Equipment Association and general sales manager Metal Specialties Manufacturing Co.; F. B. Caswell, general sales manager, Champion Spark Plug Co.; E. C. Steinhauser, export manager, the Moto-Meter Co., and George E. Quisenberry, managing editor of *El Automovil Americano*. Dorman is chairman of the Foreign Trade Committee of the association, which includes in its membership, Chalfant, Kelly and



S. W. Dorman, vice-president and general manager, Overseas Motor Service Corp., talked about "How the Smaller Manufacturer Can Get Foreign Business." His paper was printed in AUTOMOTIVE INDUSTRIES last week



John F. Kelly, Jr., export manager, Electric Storage Battery Co., gave "A First Hand View of the European Situation." A digest of his remarks appeared last week in AUTOMOTIVE INDUSTRIES



Nelson Oliver, president Automotive Equipment Association



R. H. Walpool, Stewart-Warner Speedometer Corp.



Eugene B. Clark, president Clark Equipment Co.

W. F. Earls, advertising manager, United States Rubber Export Co., Ltd.

The theme of the meeting was summed up by Titus when he said, in discussing service in the foreign field:

"It has only been within the last few months that any of us have been made to realize that the foreign market is an absolute necessity to the security of our respective industries here, because that is the big market which has not as yet been developed, whereas the home market has been developed and competition has become so keen that it has become a case of the 'survival of the fittest.' That does not exist when you leave the American shores.

Foreign Business Neglected

"The backward tendency on the part of American manufacturers to take seriously this foreign business has resulted in your companies not taking up as they should their export sales. The training of your organization, the building up of your distribution outlets, your advertising campaign, your prices, your dealers' helps, your cataloging work, your constant flow of information from headquarters is lacking in nearly every instance. I do not know of but a few to whom that does not apply—and I think you know those few who have seriously set about to organize systematically their foreign business.

"Some of you are selling by reason of perhaps the short end of your production being available for foreign distribution—an export department that functions directly with the New York export commission house, as I call him, and you depend upon him. He sells through his traveling salesman. Perhaps he is selling 1000 lines of merchandise and he takes yours. Yours is one of the straws of hay in the stack, that is all. You are not the stack! You think you are the stack, but you are not; you may be at the bottom of the stack—he does not get to you.

"The other one sells through a foreign agent. This agent represents you in that far-off land. You depend upon that agent, or that export house in New York, to interpret your policies, to sell to the public your ideas of service, when they know nothing about service themselves. This agent that you are trying to get to sell service to the public does not know very much about service; yet you let him drift on—chuck him overboard; he goes with the tide, and you say he will come out of the stream all right. Where? On top or on the bottom of the logs? Invariably on the bottom of the logs.

"We know what service standards are in America, but the foreigner who has heard this noisy explosion of service over here is unable to translate it, or interpret it any more easily than he translates or interprets the man who in error writes him in English when he only understands his own tongue. You must take that standard of service as it is known to us; put it into his language and then help him interpret; what does it mean? Then you will sell service."

The procedure outlined by Dorman, as well as several other speakers, for the company just entering the foreign field, was that some one in the sales department familiar with the product should be placed in charge of the export department. Under his direction, export technique would be built up, with whatever sales campaigns were necessary, and in this way the manufacturing company would keep complete control of the distribution, price, advertising and sales of its products abroad.

The second step is to determine how the goods should be handled in the foreign field and whether distribution should be through jobbers or direct to the retail trade. Dorman and Caswell both outlined the growth of the jobbing trade in various countries, saying that it had become an established means of distribution, so organized that prices could be maintained to a degree legally impossible in this country.

Volume of Trade Large

As to the volume of foreign trade, Wainwright stated that one-sixth of his company's present production was going into the foreign field, with Japan, Belgium and Holland as particularly important markets for the chains that the company makes. On this volume of business in 1922, Wainwright said that his company's losses were exactly \$2.50. Oliver declared that about 20 per cent of his company's sales were being made abroad and that no losses were experienced last year.

Quisenberry summed this up by estimating that approximately one-twelfth of the country's automobile production was being absorbed this year in the foreign field.

"This is the equivalent of one month's output of our car and truck factories," he said. "If we did not have any foreign trade today our major factories would be closed for some one month during the year. In other words, with 300,000 or more American automobiles going abroad this year, the volume of export business is now equivalent to our output for the entire month of

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September. In visualizing what this means, let us consider it as being the cars and trucks we make in September. If there were no foreign trade, our factories would be closed from Sept. 1 to the last day of the month."

Kelly, departing from his speech as it was published in last week's issue of *AUTOMOTIVE INDUSTRIES*, said:

"In the next five or six years our foreign trade will be an important proportion of the business that will keep our factories working full time. There is business to be had today, despite exchange and business conditions and it is waiting for us. It may take a little time for each individual company to get it, but the business is there."

Advertising Men Talk of Traffic and Brakes

SOLUTION of the traffic problem as one means of widening the market for automotive products was taken up at the advertising managers' meeting. The principal address on this subject was made by H. W. Slauson, engineering service manager of the Kelly-Springfield Tire Co., who proposed putting the third dimension into traffic by having enough storage space in every apartment house to care for the cars owned by occupants of the building. His address was printed in *AUTOMOTIVE INDUSTRIES* last week.

Another suggestion, offered by Maurice Switzer, vice-president of Slauson's company, was that elevated railroad structures in the larger cities could be transformed into motor parkways for buses.

"How Better Brake Equipment Can Sell More Cars," was considered by Dr. F. C. Stanley, chief engineer of the Raybestos Co. His address, quite naturally, ran into a discussion of four-wheel brakes, which Stanley has studied carefully.

Slauson pointed out that while two-wheel brakes were in universal use it had been the custom of motorists to place on the front wheels of their cars tires on which the treads had been worn down by service on the rear. He asked if such a practice wouldn't increase the danger of skidding with four-wheel brakes and Stanley agreed that it would.

Asked whether internal or external expanding brakes were best as front wheel equipment, Stanley replied that the internal type makes for safety. He contended that the external type might involve danger because, when the drums expand as they become heated, clearance is decreased and braking efficiency increased, which may mean locked wheels.

Ezra W. Clark of the Clark Equipment Co., and chairman of the Advertising Managers' Council, who presided, pointed out that the question of braking is highly important to the industry because it involves axle, wheel and tire manufacturers as well as producers of brake lining.

Sam A. Miles was to have outlined means by which advertising of the M. A. M. A. members can help the national automobile shows, but he is still hobbling around on "walking sticks" at his summer home at Christmas Cove, Me., and his doctor wouldn't let him come and Harry Tipper, business manager of *AUTOMOTIVE INDUSTRIES*, was called upon to discuss the question.

Tipper declared that most persons have few subjects of conversation and that one of the chief of them is the automobile. For that reason people like to be well informed on the subject. The national shows are the place where the style element can be studied and that is their

He declared that South America, Australasia and India were the three most important buying territories at present. He believes, following his recent trip to Europe, that the accessory and equipment manufacturers have a good opportunity to work up business in England and on the Continent, notwithstanding the present conditions of exchange.

The Foreign Trade Committee was organized by the association to act as a source of information and advice to members. All members are either actively in the export field or have had recent close connection with it and an invitation was extended to refer to it any questions or problems that may arise in connection with the development of overseas sales.

chief value to the automobile user. The national shows are well worth while, he contended, and have more possibilities than any other shows in the United States because of the vital social interest in them.

Tipper warned that inasmuch as the New York show is to be held in a new place next January, New Yorkers must be told again and again and again that it will be in an armory in the Bronx instead of the Grand Central Palace. He suggested that automotive advertisers could use a little of their space to good advantage to reiterate the new location of the exposition.

That motorists generally are alive to the seriousness of the traffic situation was evidenced by the report that the directors of the American Automobile Association will propose at the next meeting of the organization that a Traffic and Safety Bureau be established which will study traffic congestion in the larger cities of the country, together with means which have been adopted to provide relief, and broadcast this information, when it is properly digested, for the guidance of all organizations interested in the subject. It was felt that scientific study of remedial measures can be based upon such a foundation. One of the greatest handicaps has been lack of accurate data.

A letter was read from the mayor of New Orleans in which he took the somewhat unusual position that traffic is an engineering rather than a police problem and that proper routing of traffic will do much to relieve conditions.



A. Leroy Beaver, eastern
representative, Hoover
Steel Ball Co.



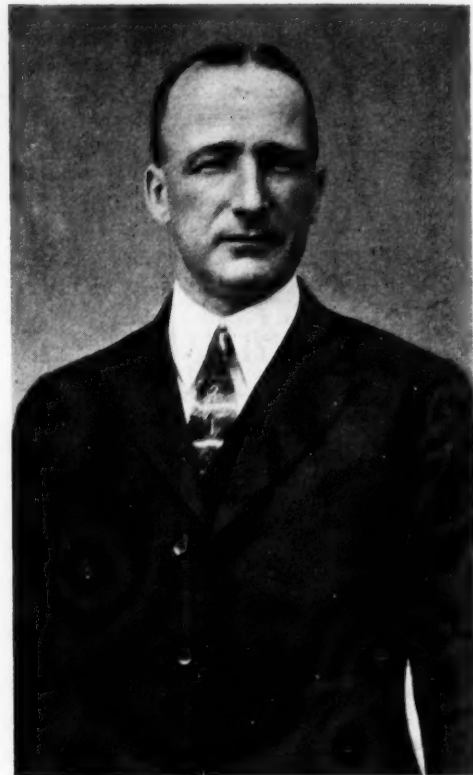
J. C. Halbleib, North East
Electric Co.

Traffic Session Develops Transport Ideas

AN important contribution to the literature on the subject of coordination of rail and motor transportation was made by Gerit Fort, vice-president of the Boston & Maine Railroad, at the traffic managers' session, at which "Delivering the Goods" was the main theme. He contended that railroad and motor vehicle service should be complementary rather than competitive. He conceded that trucks should be used for the movement of short haul, l.c.l. freight, especially in congested areas. He advocated State control of motor vehicle common carriers as well as higher taxes for them. A large part of Fort's address was published in *AUTOMOTIVE INDUSTRIES* last week.

In a discussion of "Shippers' Distribution Problems," W. M. Twohig, traffic manager of the Willard Storage Battery Co., advocated the pooling of l.c.l. shipments. Such a system gives service to customers, rapidity of transit and reduces junction transfers. He declared commodities should be warehoused at favorable distribution points to facilitate the movement of goods to customers. Warehousing reduces costs, gives better service and equalizes production by keeping plants working on a uniform basis. It also permits competition to better advantage. He asserted that shippers should cooperate with the carriers by releasing cars as promptly as possible. All of these efforts when combined spell service, he said.

W. H. Chandler, traffic manager of the Boston Chamber of Commerce, stressed the important part traffic managers should play in any industrial organization and declared that if they were used merely as clerks to check freight bills and perform other routine duties they could not earn their salt.



W. M. Twohig, traffic manager, Willard Storage Battery Co., read a paper on "Shippers' Distribution Problems"

Successful Riveting Depends Upon Many Factors

AT a recent meeting of the New Haven Section, American Society of Mechanical Engineers, H. A. Moore of the High Speed Hammer Co., read a paper dealing with various phases of riveting in which the following among other points to be borne in mind by those who use rivets were brought out:

Cold setting of rivets up to 1 in. diameter is common while 1½-in. sizes are successfully set cold. Cold set rivets, in general, are less apt to loosen in service than are hot set rivets when the work is properly done. This is attributed to better filling of the hole. A hot rivet contracts on cooling and is apt to leave the hole partly unfilled. Rivets or studs which do not fill the hole quickly loosen when subjected to vibration. The hole can be readily filled cold if reasonable clearance is used.

Heat treated rivets are now quite common. Breaking off in service of the original head is more common than breaking off of the head formed in riveting, especially when rivets are not properly heat treated. This is attributed to changes in molecular or crystalline structure.

Riveting without upsetting shank of rivet is accomplished, if desired, by using light hammer blows and sets smaller than heads of rivet.

Even fairly hard high carbon steel is readily riveted if metal is not worked too fast, that is, with too heavy blows. Riveting of cast iron, fibre and wood is easily

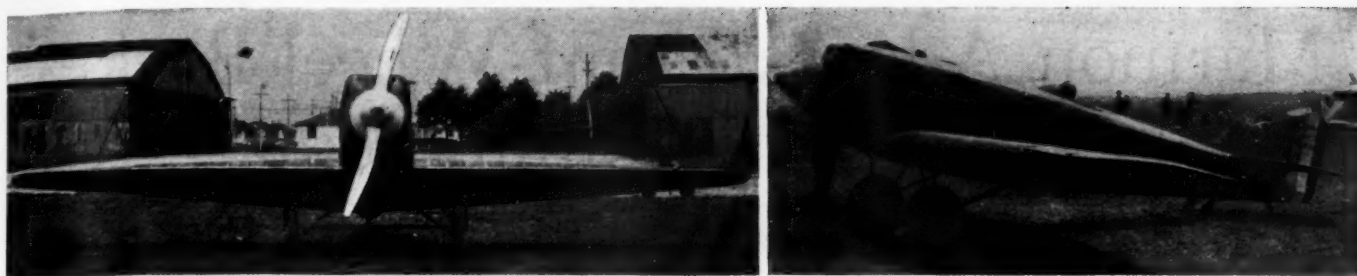
done, as is also riveting without supporting shank, providing weight of blow is correctly proportioned.

Rivets should have same flow characteristics as that of material through which they pass.

Amount of metal which should be allowed to form head varies with size of head required, but a length equal to the shank diameter is usually sufficient. Strength of head is approximately proportional to its thickness at points opposite circumference of shank. Countersunk heads are easiest to set, but are apt to be weaker than other forms. Sets should not cover entire area of rivet head for best results in general case.

Chain manufacturers are among the largest users of riveting hammers and this work is about as difficult as any on account of hard materials used.

The High Speed hammer exhibited by Moore at the meeting has a wooden arm with rubber bumper blocks at both striking and pivoted end. It is oscillated by a motor driven crank and control is by pedal which permits operator to vary weight of blow. This hammer is used in die hammering and even for cutting glass, as well as for riveting. In the Reo plant it is employed to rivet 1¼-in. axle shafts of heat-treated steel to hub member. In one plant it is said to rivet brake linings to bands at the rate of one per minute, there being fourteen rivets in this band.



Verville-Sperry Adopts Wing Type Radiators

Are secured to plywood surface in such a way as to facilitate replacement. Curtiss D-12 powerplant is used in new racer.

Characteristics of the 1923 Verville-Sperry Pulitzer Racer

Motor, Curtiss C-12	500 hp.	Overall height	7.25 ft.	Stabilizer area	11.8 sq. ft.
Bore and stroke	4 $\frac{5}{8}$ x 6 in.	Tread of wheels	75 in.	Elevator area	7.25 sq. ft.
Span	30.6 ft.	Fuel	40 gal.	Rudder area	6.75 sq. ft.
Area	146.5 sq. ft.	Oil	4.7 gal.	Fin area	4.95 sq. ft.
Overall length	20.5 ft.	Weight	2475 lb.	Aileron area	10.4 sq. ft.

MODIFICATIONS in the design and power plant of the Verville-Sperry racer have resulted in bettering by 33 m.p.h. the air speed of 186 m.p.h. attained by the original machine in the 1922 Pulitzer race. Electrically timed in two directions over a measured course, the new Sperry monoplane reached a speed of 219 m.p.h., which the manufacturers claim to be a world's record for monoplanes. The landing speed is considerably lower than the maximum of 75 m.p.h. permissible in the St. Louis races.

Notable changes from last year's design include adoption of the Curtiss wing type radiators in place of the Lamblin Model H, which was carried beneath the fuselage and the installation of a Curtiss C-12 engine. The overall height of the Curtiss engine is such as to permit elimination of the familiar "humps" covering the cylinder heads and valve gear in the nose of the fuselage. The result is a smooth straight-line cowling effect extending back to the cock-pit.

The salient features of last year's machines, however, have been retained. The retractable undercarriage, operated by a crank from the left side of the cockpit, has been altered slightly to guard against landing with the wheels in the "raised" position, an accident which actually occurred to one machine in the last Pulitzer race. To eliminate danger of such trouble a gage has been installed in a conspicuous position ahead of the pilot indicating whether the chassis is "up" or "down."

The thick section main wings, while still retaining the N. A. C. A. No. 81 modified wing curve, have been considerably changed. The total area has been increased from 141 to 146 sq. ft. and elliptical wing tips have been substituted for those of rectangular form. To offset the stresses set up in the wings, due to higher speeds, the entire upper and lower surfaces have been covered with 3/32 veneer, the plywood itself being covered with fabric, which is treated and doped in the usual manner. The whole forms a rigid smooth aerofoil. Improved lateral stability has been obtained by reducing the area and length of the ailerons. In their new form they are

tapered, having the greatest chord at the wing tip end.

The Curtiss wing type radiators extend from leading and trailing edges on both upper and lower surfaces of the wing. The water cooling system consists actually of eight separate radiators, each upper and lower surface on both sides of the fuselage being divided into two sections and connected by water leaders at the leading and trailing edges. The upper surface on each side extends outward along the wings 90 in. and the lower surface 65 inches. The method used to secure the radiators to the plywood surface is such as to make possible the removal of any section of the coolers in a few minutes. Rectangular metal plates, having an eye stamped upward from the center, are screwed to the wings across the chord. These are so placed that they are in line with other eyes formed in the radiators at the joints of the 9-in. sections of sheet brass employed in their construction. A 1/8-in. steel wire is passed alternately between the eyes in the radiators and the eyes fastened to the wings. By simply withdrawing the wires, which have a loop turned at the front end, and disconnecting the front and rear leaders, any section may be quickly removed and replaced.

The power plant is a standard Curtiss D-12 engine, rebored to 4 $\frac{5}{8}$ -in. diameter. It has a compression ratio of 5.8 and has delivered over 500 brake hp. A standard D-12 4 $\frac{1}{2}$ -in. bore, 460 hp. motor will be taken as a spare for the St. Louis races.

A Curtiss-Reed duralumin metal air screw may be fitted to the machine in time for the race. This unit is expected to improve the speed by at least 5 m.p.h.

Exhaust manifolds leading out into the slip stream are no longer employed. Instead a series of rectangular ports are brought out flush to the sides of the cowling. The engine cowling is quickly detachable by the same means as that used for fastening the radiators to the wings. Upon the recommendation of the Curtiss company this engine is fitted with a water-cooled oil temperature regulator, which, by means of a thermostat and bypass, regulates the temperature of the oil before it enters the engine.

Marmon Adopts Front-Wheel Brakes as Optional Equipment

Furnished for extra charge of \$125. Are connected with rear wheel linkage, which is unchanged except for extension of brake pedal. Mechanism is housed within drums as far as possible. Front axle strengthened to take care of additional stresses.

FRONT-WHEEL brakes are now furnished as optional equipment on Marmon cars at an extra cost of \$125. The new brakes are connected with the standard rear-wheel linkage, which is unchanged except for the provision of an extension on the brake pedal, employed to actuate the front-wheel linkage. The new brakes are internal expanding. In developing the design it has been endeavored to keep down the foot pressure required to apply the brakes. With four-wheel brakes it is generally necessary to compromise between long pedal travel and heavy foot pressure, but in the Marmon design the wrapping principle is taken advantage of to reduce the pedal pressure required.

Fig. 1 illustrates the right front brake with the drum removed. The brake band rests on three supports, 1, 4 and 7, being drawn inward against these supports by the tension of three springs. Each support is adjustable and can be used in regulating the clearance between the brake band and the drum. The lower end of the band assembly is connected through the link 6 to the brake carrier. The upper end of the band is acted on by the lever arm 8.

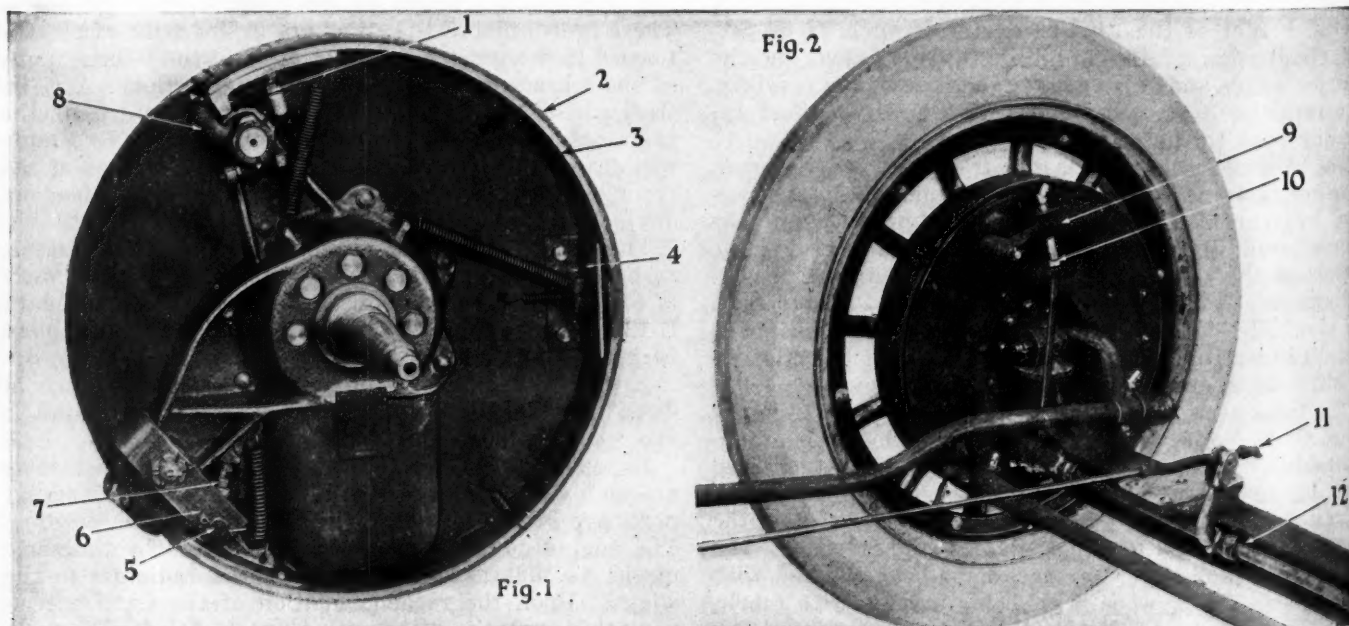
This lever arm is keyed to a shaft which extends through the brake carrier and dust shield, and whose outer end forms a crank arm for connecting the control linkage. When the brake pedal is depressed it causes

arm 8 to force the brake band outward into contact with the inside of the brake drum. The pressure between the band and the drum is partly due to the pressure on the pedal and partly to the tendency of the band to rotate with the drum, or to what is known as the wrapping effect.

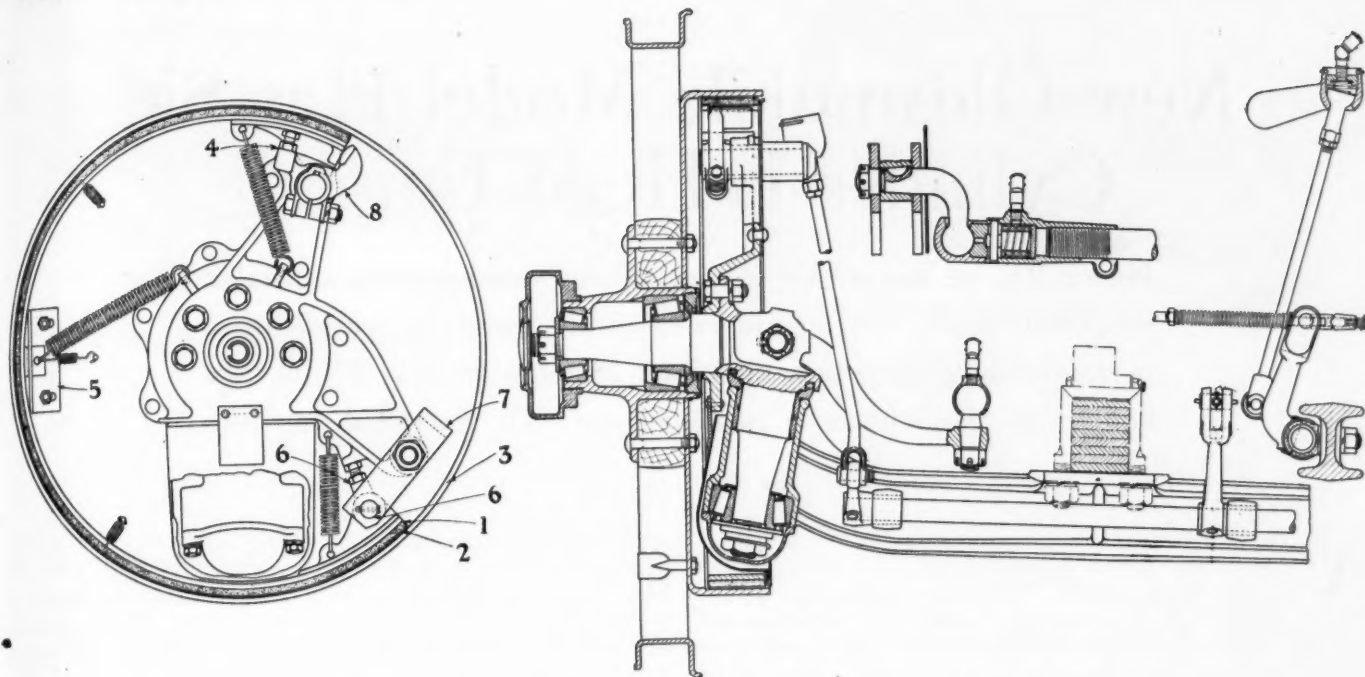
Brake Linkage Described

The brake control linkage is shown in Fig. 2. The lever arm 8, Fig. 1, terminates externally in the crank arm 9, Fig. 2. This arm is operated by a cross shaft 12, which lies within the rear channel of the front axle I-beam and is supported by it in self-lubricating bearings. The ends of the cross shaft are connected to the crankarms on the left and right brakes, through levers and links. The upper end of the links terminates in a ball and socket joint entirely inclosed and provided with a lubrication fitting. The ball end is threaded and provided with a lock nut 10, serving as an adjustment for equalizing the left and right front brakes.

The center of the ball joint lies in the axis of the steering knuckle pin so that the steering action causes no motion of the brake mechanism and the application of the brakes is not affected. The braking effect of the front-wheel brakes can be changed in relation to that of the rear-wheel brakes by turning a nut 11, thereby in-



Internal and external views of the Marmon front-wheel brake



Assembly views and details of Marmon front-wheel brakes and linkage

creasing or decreasing the effective length of the brake rod.

As far as possible all of the brake mechanism is housed within the brake drums, as a safeguard against

dirt, water, mud and ice. It is claimed that steering is not affected by application of the brake. The front axle has been strengthened to take care of the additional stresses.

British Use Pneumatic Bus Body Suspension

A PNEUMATIC system of suspension for the bodywork of motor buses and trucks has been adopted by the corporation of Ashton-under-Lyne (England) for recently delivered additions to its fleet of buses, and it is intended to apply it in due course to the remainder of the vehicles in service. This move has followed successful experiments with the suspension on the street cars run by the same local authority.

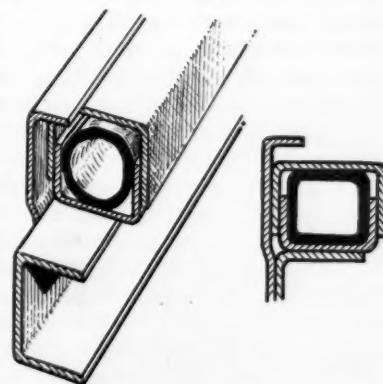
Termed the Holden suspension system, it calls for no radical variation in the construction of chassis or body, being interposed between the two without being noticeable externally. It consists of two steel channels, one overlapping the other, the bottom one fixed to the chassis frame and the upper one to the body. Between the two is a rubber air tube $3/32$ in. thick. The channels extend along each side only of the chassis and body; the tubes are interconnected to secure equalized pressure and are maintained at a pressure of approximately 5 lb. per sq. in. for a two-ton load. Variations of pressure can be made by the driver according to the load carried, the tubes being connected to an air pressure tank, with a gage within the driver's view and a control lever at hand for the purpose of admitting more air to the tubes or releasing the pressure therein.

To prevent the upper channel and the body from lifting excessively, restrainer plates are fitted at certain points, these consisting of angle steel units bolted to the chassis frame and permitting a determined amount of latitude for the upward movement to the top channel.

Body movement relative to the chassis is of a vertical order only, and although it would be a simple matter to fit some special provision to prevent longitudinal dis-

placement, this is said to be unnecessary because the coefficient of friction between the channels and the air tube is sufficient to counteract any tendency toward movement of this nature.

It is claimed for this system that it affords passengers greater comfort than that provided by pneumatic tires without liability to puncture, at less expense in fitting, and at much less cost for renewals and maintenance charges.



Sectional views of Holden pneumatic device for use between frame and body of buses

A DIESEL-engine-propelled ferry boat, specially designed for transporting automobiles and their occupants, has been built for the Canadian Pacific Railway and will be placed in service between Sidney, Vancouver Island, and Bellingham, Wash. Room is provided for forty-five motor cars on the upper and main decks. The general appearance of the ferry is similar to that of a passenger steamer and entirely different from that of the usual ferry boat. To get the cars to the upper deck a ramp is provided between the two decks, and this does away with the slow and sometimes unreliable use of an elevator.

New Oldsmobile Model Has Six Cylinder L-Head Engine

Bore is $2\frac{3}{4}$ in. and stroke $4\frac{3}{4}$ in. Three speed gearset, a tubular propeller shaft, fabric universal joints, and a semi-floating rear axle are other characteristics. Phaeton price is \$750. Six body types, including a two-passenger cab, included in line.

By W. L. Carver

ANNOUNCEMENT of the new six-cylinder Oldsmobile rounds out the program of the General Motors Corporation. The new model, for which the factory is tooled up on the basis of a production of 600 cars per day, fills the gap which has heretofore existed between the Chevrolet and Oakland. The entire plant has been reorganized and equipped with modern production facilities. No building program has been involved, as the increased capacity of new equipment makes the present floor space ample for the production program adopted. Manufacturing effort will be concentrated on the six-cylinder model.

Briefly, the line consists of six body types, including two- and five-passenger standard open models, a four-passenger coupe, a five-passenger sedan, a two-passenger cab and a sport touring model, all mounted on a standard chassis of 110-in. wheelbase. The engine is of block construction, having six cylinders of $2\frac{3}{4}$ -in. bore and $4\frac{3}{4}$ -in. stroke. A three-speed gearset carrying the hand brake at its rear end is carried as a unit with the engine. Fabric universal joints and a tubular propeller shaft drive the semi-floating rear axle of one piece pressed steel construction. The service brakes are mounted on the rear axle and operated through a bar equalizer which is mounted ahead of the third cross-member.

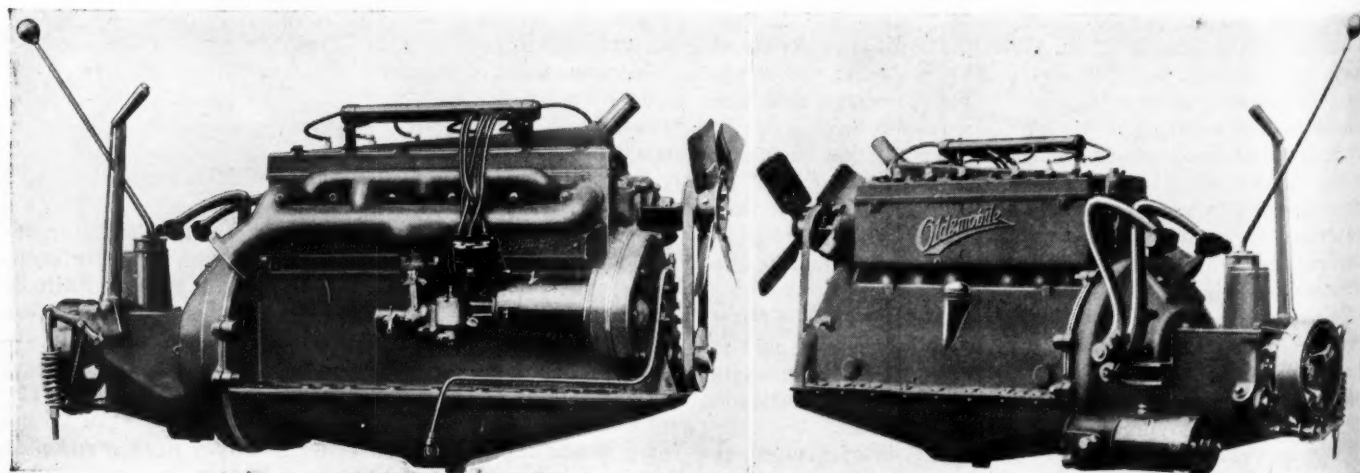
Cylinders and crankcase are cast together, and as the crankcase is parted $2\frac{5}{8}$ in. below the center line of the crankshaft, a very rigid structure is obtained. A pressed steel oil pan, which slopes from both ends toward the middle, incloses the bottom of the case, and the detachable head bolts on flush with the topmost point of piston travel. The displacement is 169.3 cu. in. and

the power curve peaks with 42 hp. at 2700 r.p.m. The crankshaft is mounted in three main bearings, whose dimensions (diameter by width, front to rear) are $2 \times 2\frac{11}{16}$ in., $2\frac{1}{16} \times 1\frac{5}{8}$ in. and $2\frac{1}{8} \times 2\frac{3}{16}$ in. Crank-pin bearings are $1\frac{7}{8}$ in. in diameter and $1\frac{1}{2}$ in. wide. The crank-pin journals are drilled out to $1\frac{1}{8}$ in. The main bearings are Chadwick, bronze-backed, babbitt lined bearings, and are completely finished before delivery to the assembly line. The crank-pin bearing is tin bonded and babbitted in place and finished to a standard size. No fitting is done at the assembly line, as the limits on crankshaft and bearings are established to allow approximately 0.002 in. oil clearance.

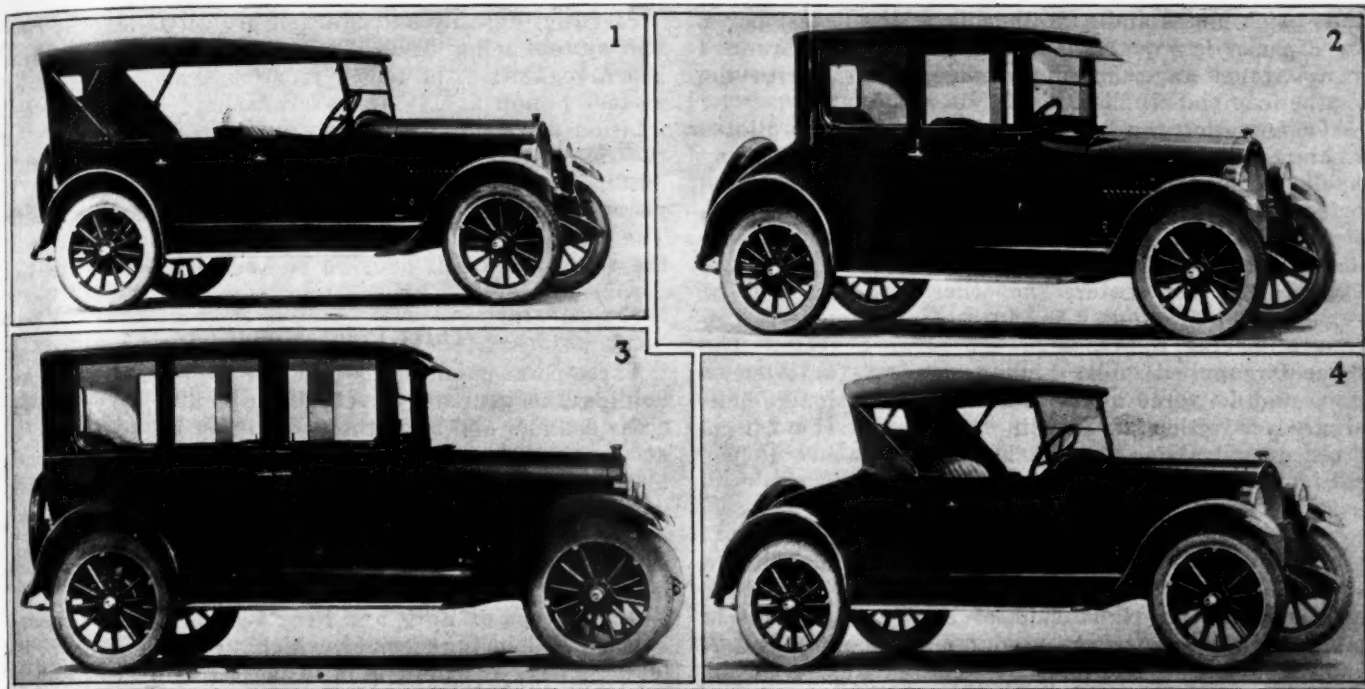
Crankshaft Thrust

End thrust of the crankshaft is taken at the front main bearing by split washers at each side of the bearing. These washers are piloted on extensions of the bushing halves and restrained from rotation by dowel pins in the bearing cap. Two thicknesses of split washers permit three combinations for total thickness and therefore bring about very close endwise adjustment. The assembly at the front end of the crankshaft is completed by the helical steel timing pinion of 1-in. face, a steel washer and a starting crank jaw sleeve which is retained by a cap screw and washer and carries two pressed steel halves forming the fan drive pulley. At the rear end the shaft is fitted with a slinger, a return helix and the usual flywheel mounted flange.

Two bolt rods of light I-section are used; they are $8\frac{1}{2}$ in. center to center length, and are fitted with bronze bushings of 1-in. length at the upper



Valve side and off side of Oldsmobile power plant



1—Five-passenger phaeton, \$750

3—Five-passenger sedan, \$1,095

2—Four-passenger coupé, \$1,035

4—Two-passenger roadster, \$750

bearing. The light tubular piston pin is 55/64 in. in diameter and floats in both the rod and the cast-iron piston, being retained at the ends by snap rings. Oil holes are drilled in the tops of the rods and the piston bosses. Pistons are of cast iron of light section and are $3\frac{1}{4}$ in. long, the pin center being located $1\frac{3}{8}$ in. from the bottom of the skirt. Three step cut rings of 3/16-in. width are all located above the piston pin. Diagonal drain holes are drilled through the skirt at the lower corner of the bottom ring groove. Crankshaft and flywheel are dynamically balanced as a unit and the pistons and rods are matched in each engine, the limit of variation being $\frac{1}{8}$ oz. The pistons are annealed before the finish grinding operation and the cylinders are allowed to season after the rough boring operation, the final finish being obtained by the honing process. It is claimed that this process produces cylinders which are perfectly round and within 0.0005 in. of the nominal diameter.

Dome Type Combustion Chamber

A dome-type combustion chamber is cast entirely in the detachable cast-iron cylinder head. At the end of the up-stroke most of the charge is located over the valves, and a high degree of turbulence is said to be obtained. The spark plug is located near the center of mass of the compressed charge. It is stated that the combination of these factors brings about high fuel economy with a minimum of knocking or detonation. An unusual feature of this engine is found in the thorough water jacketing. Cylinder barrels, valve seats and spark plug bosses are all completely surrounded by water space of liberal dimensions. The spark plug is slightly inclined, for greater accessibility.

Cast-iron head valves of $1\frac{3}{8}$ in. clear diameter are located at the right side of the engine. The valve stems of 5/16-in. diameter have their bearings in pressed-in cast-iron bushings which are $2\frac{1}{8}$ in. long. Valve springs are $2\frac{1}{8}$ in. long and are retained at the lower end by conventional cups and C-clips. The valves are lifted $\frac{1}{4}$ in. by hollow mushroom tappets having a set screw and lock nut adjustment. Six tappets are carried in each

of two cast-iron brackets, which are secured by cap screws at bosses on each of the six cylinder barrels. All of the valve operation parts are inclosed by two pressed-steel valve housing covers.

Camshaft Design

The camshaft, which is driven by a cast-iron helical gear of 1-in. face, is carried on three bearings reamed in the cast-iron cylinder block. The diameter of this shaft between bearings is 1 in. and the dimensions of the bearings (diameter and width, front to rear) at $2\frac{1}{8}$ x $1\frac{27}{32}$ in.; $1\frac{7}{8}$ x $1\frac{3}{4}$ in.; $1\frac{3}{4}$ x $1\frac{3}{4}$ in. The firing order is 1-5-3-6-2-4. A gear-type oil pump, which is located in the timing gear cover, is driven by an extension of the front end of the camshaft. The cover of the oil pump is arranged to deliver the oil into the front end of the camshaft, which is drilled through its entire length to form the oil distributor for the whole engine. Except for a short section at the front end, the shaft is rifle-drilled to $\frac{5}{8}$ in. and closed at the rear end by an expansion plug. The section at the front end is drilled out $\frac{5}{16}$ in. and chamfered at the intake end.

Holes are drilled through the camshaft at all bearings so as to index with annular grooves. The camshaft bearings are therefore lubricated by oil under pressure and the supply is conveyed to the crankshaft main bearings by holes which are drilled in the webs of the crankcase. The main bearing shells are also provided with annular grooves which register with holes which are drilled diagonally in the adjacent crank cheeks connecting with the drill holes in the crank pins. The cheeks on both sides of crank throws 2 and 5 are also drilled and plugged at the open ends, so that the crankshaft forms a complete circulating system. Finally, drill holes in the crankpins supply the lower rod bearings. Cylinder walls, piston pins and tappets are oiled by the spray thrown off by the lower rod bearings.

A copper tube intake line connects the pump with a tubular screen which is screwed into the oil pan at the lowest point. An adjustable regulating valve is located at the front, the overflow being directed on to the timing gears. The pressed-steel oil pan is equipped with splash

pans, baffle plates and a drain plug at the lowest point. The capacity is 5 quarts, and the oil level is determined by a bayonet gage, which is made integral with the breather cap and oil filler.

A combination fan bracket and water pump is piloted in the front of the cylinder block. The cast-iron pump impeller is pinned and keyed to the fan shaft and supported by a bronze bushing which is fitted with a threaded packing nut at its outer end. The 15-in. four-blade fan has an iron hub which forms one-half of the V-type sheaf and centers the other half, which is of pressed steel. The outer or fan bearing is made in two sections, having a grease pocket between them. The grease is supplied under high pressure at an Alemite fitting and delivered to the two bearings by double helical grooves which are cut in the shaft. The fan is driven directly from the crankshaft with about 10 per cent increase in speed.

Manifold Construction

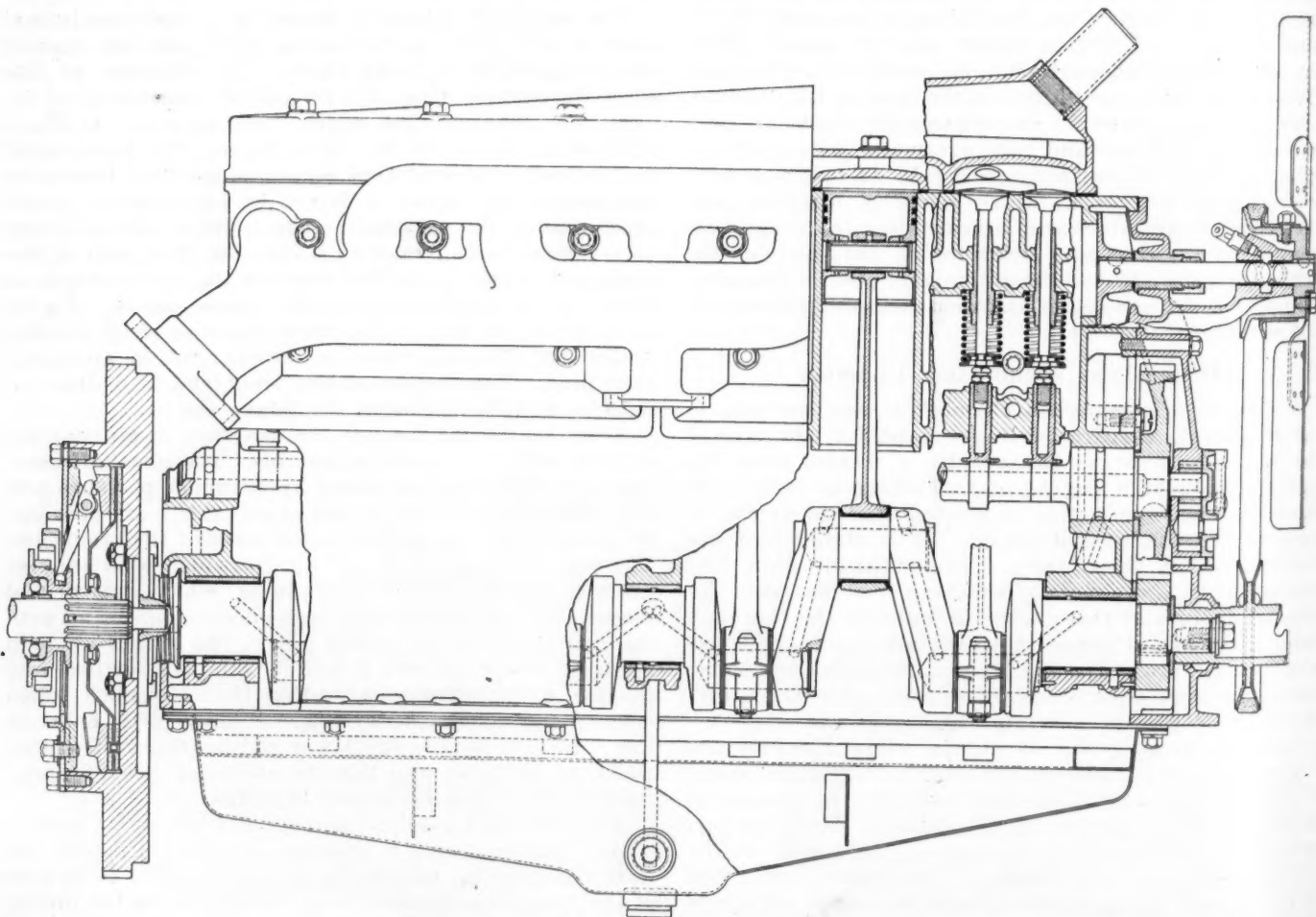
A combination intake and exhaust manifold carrying a Zenith 1-in. vertical carbureter is held on by five studs and nuts at the right side of the cylinder block. Siamesed intake ports are used for cylinders 1 and 2, 3 and 4, 5 and 6, respectively. The exhaust ports of cylinders 1 and 6 are individual, while those of 2 and 3, and 4 and 5, respectively, are siamesed. The branch pipe above the carbureter, which equalizes the mixture travel to the various ports, is cast with the greatest portion of its area in contact with the exhaust passage. The elbows which connect the main fore and aft intake manifold with the intake ports are also in contact with the exhaust passage. The exhaust passage connects with the muffler pipe at a diagonal flange at the rear end.

Starting, lighting and ignition are all Delco, the two-unit system being used. The generator, which has third brush regulation, is driven from the camshaft gear by a steel pinion at $1\frac{1}{2}$ times crankshaft speed, and the ignition distributor is driven by small helical gears at the rear end of the armature shaft. A Willard storage battery of 80 ampere-hour capacity is carried in a pressed metal sling immediately under the driver's seat. The starting motor is secured in a barrel mounting at the rear of the bell housing on the left side below the crankshaft level.

Three-Point Mounting

Three-point mounting is used for the engine, two bolts holding the gearcase cover at the center of the front cross channel and two others retaining the bell housing at the second cross channel. Short lengths of rubber hose connect the engine with the Harrison radiator, which is also carried by the front cross channel through intermediate brackets. A short length of pipe is threaded diagonally into the front end of the cylinder head casting to form the engine water outlet.

A new type of Borg and Beck 9-in. clutch is inclosed by the bell housing member, which also carries the pedal lever bearings. This clutch is shorter in overall dimension than previous types made by the same company. The pressure spring is placed outside rather than inside of the back cover plate, and the characteristic block cam followers have been replaced by simple levers having rounded ends. Two friction discs are riveted to a very light concave steel driving disc. The same cam plate adjustment feature has been retained, although the working height of the pressure spring has been reduced. Operation is by a horizontal fork which has its center



Partly sectioned side elevation of Oldsmobile engine

at the right side and an extension through the left side of the bell housing. The throwout bearing is oiled by the gearbox lubricant through the medium of a drilled shaft. The clutch shaft is piloted in a bronze bushing at the crankshaft flange.

Conventional lines are followed in the design of the three-speed gearbox which is centered and bolted on the back of the bell housing member. One new feature is found in the design of the gearshift forks. Instead of the usual forged forks and gate rods, a unit construction is stamped out of flat steel plate and held in place by other pressed steel pieces. The gearshift lever is mounted in a high column, which also incloses a tumbler-type cylinder lock. The upper bearings are New Departure, the pilot is a bronze-bushed bearing. The countershaft assembly is built up on an extension of the reverse pinion hub which carries pressed-in bushings that rotate upon a fixed shaft. At the rear end of the tail shaft a forged hub with radial arms carries the speedometer drive gear, the emergency brake drum and the forward universal joint.

Emergency Brake Location

The emergency brake is located at the rear of the gearbox and operated by an L-shaped extension of the hand lever which is pivoted at the right side of the gearbox cover. A pressed steel drum of 6½-in. diameter and ⅛-in. thickness is bolted to three of the arms of the rear forged-steel hub. Braking in both directions is accomplished by the double acting band of 2-in. width which is actuated by a compression link connecting directly with the hand lever and anchor lever which is centered directly below the tail shaft. A heavy coil spring forms part of the compression link assembly, and serves the purpose of cushioning the brake applica-

tion. Both ends of the band are supported at the anchor lever and additional supports are formed by cantilever springs of round wire which are anchored at the rear gearcase cover bolts and hook into loops formed in the steel brake band. When released, the brake is held open by a coiled spring connecting the anchor lever and the stamped-steel ratchet sector.

Fabric Universal Joints

Three-point fabric universal joints are used at each end of the propeller shaft, which is formed by riveting and arc-welding a steel tube of 1¾-in. outside diameter to drop forged spiders at each end. Thermoid-Hardy joints of the usual construction are standard equipment. As the propeller shaft is more than 51 in. long overall, the included angle of the joints for any spring position is quite small. A semi-floating rear axle of one piece banjo construction is used, in conjunction with the Hotchkiss drive. New Departure ball bearings are used throughout and complete adjustment in both directions is provided. The pinion shaft of the 4.7 to 1 spiral bevel gear reduction is carried in straddled bearings. A two-row bearing is located ahead of the pinion in an adjustable cage, while the outboard bearing is riveted in place on the rear extension. Thrust-type bearings, backed up by adjustable nuts, determine the lateral location of the ring gear, which is riveted to a four pinion bevel-type differential gear carrier. The entire gear assembly is carried in a malleable iron carrier which bolts on the front of the pressed-steel axle housing, the rear being closed by a pressed-steel inspection cover.

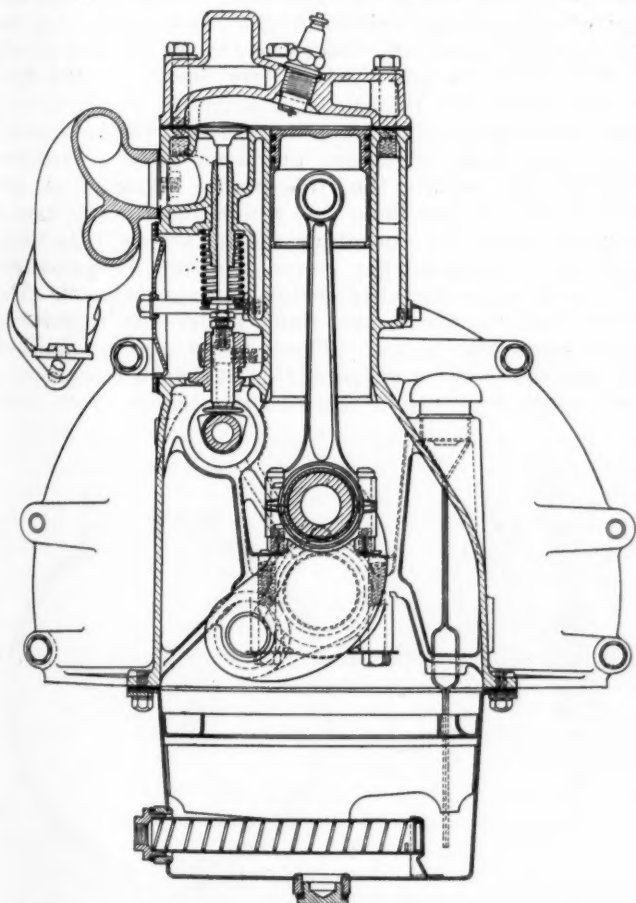
The live axle shafts are splined freely in the equalizing gears at the inner ends and retained by threaded nuts back of the ball bearings at the outer ends. The bearings are clamped in the malleable cast axle ends by four bolts passing through the stamped-steel brake carrier. Felt grease retainers are installed at both sides of the wheel bearings, lubrication being provided by the Alemite system.

The rear brake construction is somewhat novel, as each band is divided at the rear anchor; that is, there are two half bands for each drum. Each of these bands is anchored by means of an eye-bolt at a pin in the brake anchor bracket which is riveted to the stamped-steel brake carrier. The brakes are adjusted by nuts located at the sides of the lugs on the bands. The brake drums are 12¾ in. in diameter and the width of the bands is 1½ in. Operation is by the usual clamping lever at the front, the connecting link carrying a releasing spring which contacts with a slotted eye bracket to insure positive quiet release. As the pedal pressure is released, this spring takes up all the slack at the clamping link and clears both bands from the drums. The brakes are operated by a single link connecting the pedal lever and an equalizer bar which is placed between the inner levers of two cross shafts which are located just ahead of the third cross-member. Levers at the outer ends of the cross-shafts are connected by links to the clamping levers on the brakes, the latter links being located outside of the frame side channels.

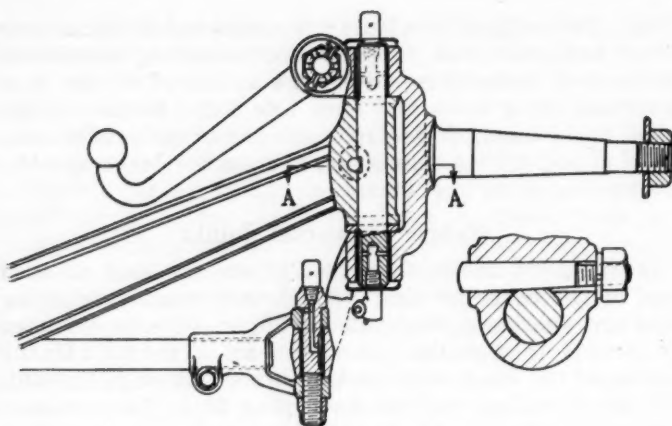
Wood Wheels Used

Wood wheels with steel felloes carrying 31 x 4-in. cord tires as standard equipment are held by nuts on the tapered extensions of the live axle shafts. The underslung rear springs are 50¾ in. long and 2 in. wide, having seven leaves. All spring eyes are phosphor-bronze bushed, the shackle bolts being ⅝ in. in diameter and fitted with Alemite connections.

An offset frame, swept up over the rear axle, is used. The side channels are 5½ in. by 1¾ in. by ⅛ in. at the



Cross section of engine. Note shape of combustion chamber



Details of axle end and steering knuckle

center. Four cross-members tie the side channels together into a stiff structure. The front inverted channel member supports the front end of the engine and the radiator, the second supports the rear end of the engine, and the third, which is also inverted, is a purely structural member. The fourth cross-member is a wide plate, forming the gasoline tank support and protector, being riveted into both upper and lower flanges of the side-members. The frame is 42 in. wide at the rear and 28 in. at the front, the length overall being 152 in. The steering gear is centered in a bracket which is riveted to the left web, the barrel of the steering arm shaft passing through the web.

The front springs are 36 in. long, 2 in. wide, and have six leaves. The shackle links at the rear end of the springs are inclined at a considerable angle, as are those at the rear end of the rear springs, in order to smooth out road shocks. Considering the comparatively short wheelbase and low car weight, the riding qualities are excellent. Reversed Elliot steering knuckles with vertical pivots are used on the I-section front axle. The cross link arms are forged integrally with the knuckles and the drag link arm is mounted in a taper seat. Bronze bushings are mounted above and below the bosses on the ends of the axle, and the pin bearing construction is fully inclosed and made dust tight by pressed-steel caps. Thrust-type ball bearings carry the front wheels, the toe-in being specified as 20-30 min. at each spindle. A $\frac{7}{8}$ -in. straight cross link with threaded clevis ends is placed back of the axle. As a result of narrowing the frame at the front the minimum turning radius is 18 ft.

Ball-thrust bearings are located on both sides of the worm in a semi-reversible steering gear of the worm

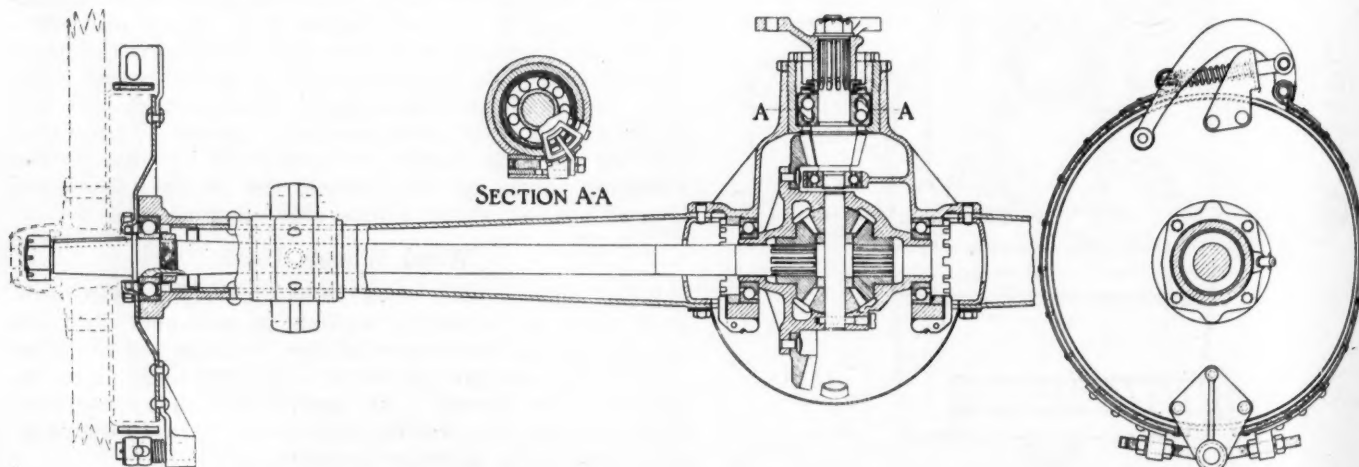
and gear type. Any wear is taken up by an adjusting collar below the lower bearing. A 17-in. steering wheel with horn button is placed at the top of the steering column. Ball joints, which are protected by steel and leather caps and lubricated by grease under pressure, are fitted to both ends of the drag link, which is of one-piece tubular construction carrying shock springs. Spark and throttle manual controls are carried on sectors just under the steering wheel.

The gasoline tank, of 12½ gal. capacity, is located under the rear cross-member, fuel being delivered to the carburetor by a vacuum tank which is located on the front of the dash under the hood. The usual instruments, including speedometer, oil gage and ammeter, are grouped on the instrument board with a choke control button and a combination ignition and light switch. The headlamps are fitted with Flat-lite reflectors and plain lenses and an auxiliary dimmer bulb. The tire carrier and tail lamp are mounted on the gasoline tank guard at the rear end. Full crowned pressed steel fenders are used all around, with the usual dust aprons at the running boards and at the bottom of the radiator. The fenders and similar parts are enamelled by the dipping process and baked to a permanent lustrous finish.

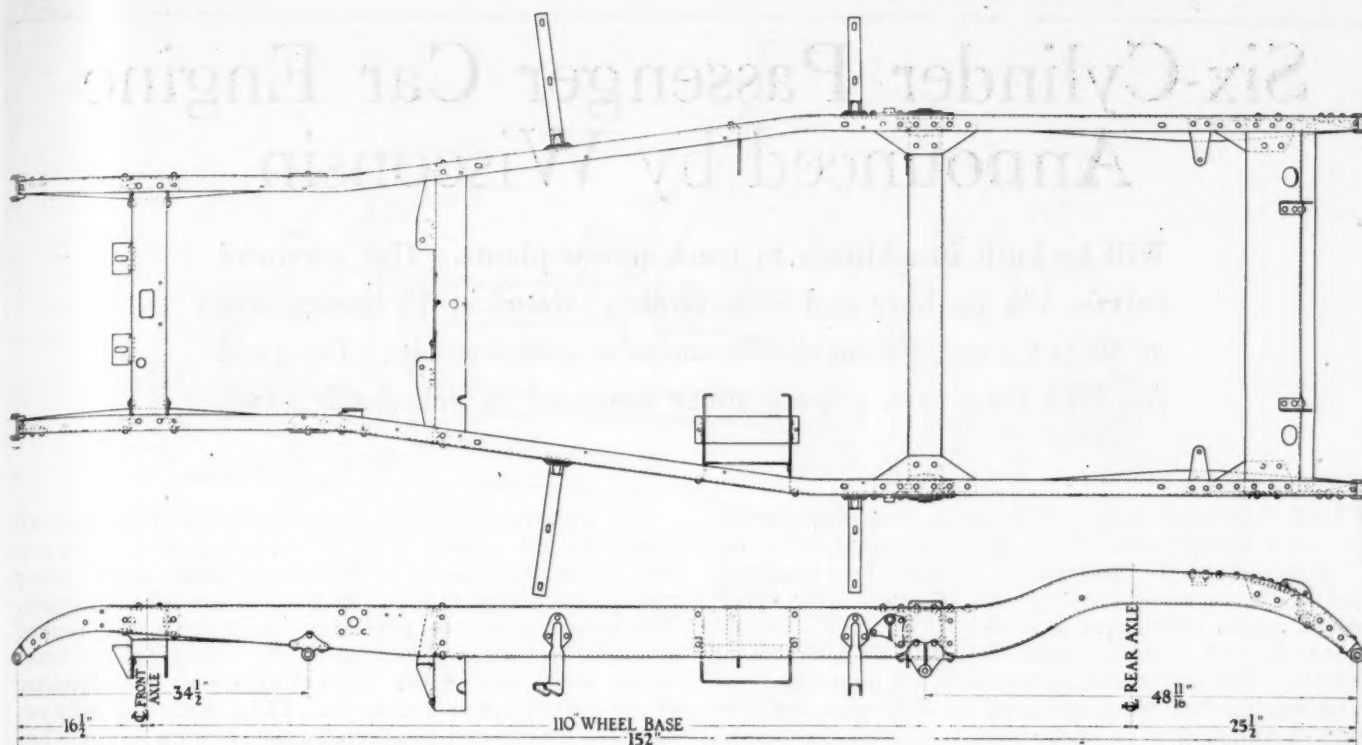
Phaeton Weighs 2150 Lbs.

The five-passenger open car weighs 2150 lb. and other models in proportion. The characteristic Oldsmobile radiator line has been retained and stream lines prevail from this line back. Turning to the underslung rear springs, the body of the car is carried low, and the low center of gravity makes for good riding and easy handling. Open bodies, including the two-passenger roadster and the five-passenger touring, are finished in black baked enamel, which is put on in three coats, with one intermediate sanding operation. The upholstery and tops are of DuPont Fabrikoid, the color being black for the standard open cars. Steel rods carry the door panels of the storm curtains, which are stored in the door pockets when not in use. To facilitate rear vision, a large rectangular glass panel is placed in the back panel.

All open body types are produced on a progressive assembly line within the Olds plant. Closed types are made by the Fisher Body Co., which shortly will have a complete plant in operation in an adjacent location. Both the four-passenger coupe and the five-passenger sedan are conventional in design and appointments. The fourth seat in the coupe folds under the instrument board when not in use. These two types are finished in a maroon paint and include as standard equipment a cowl ventilator, visor, windshield cleaner, rear view



Sectional view of rear axle, showing straddle support of bevel pinion and arrangement of brake



Frame assembly of the new Oldsmobile

mirror and heater. The interior finish and upholstery are gray velour.

The two-passenger cab carries the same incidentals, is an all steel construction, and is finished with baked black enamel. The upholstery in this body is gray velour. The sport touring model is finished in a weathered-bronze green paint with disc wheels of the same color. The upholstery of this car is a brown figured Fabrikoid. Nickel-plated bumpers and head lamps, as well as windshield wings, metal visor, cowl ventilator, trunk rack and guards are included in the standard

equipment. A motometer, windshield cleaner and rear view mirror are also included.

Prices have been fixed on the basis of a high annual output in order to fit this line into the General Motors price range. The sport model price has not been set. Prices on other models are:

Five-passenger touring car.....	\$750
Two-passenger roadster	750
Four-passenger coupe	1035
Five-passenger sedan	1095
Two-passenger cab	955

Contact Areas of Loaded Balls Between Flat Plates

SOME experiments on the contact areas of steel balls placed between flat steel plates under load have been made by Prof. John Goodman, and the results obtained are published by him in an article which appears in *Engineering* of London. This contact area is generally calculated by Hertz's equation, and the accuracy of this equation has been questioned, hence the experiments. Professor Goodman devised a new method for determining the contact area, which consists in rotating the ball while under load around its loaded axis. A guide at the equator holds the ball central, and a clamp comprising two annular members held together by bolts serves to rotate the ball by. On removing the ball from the machine the circular areas which have been rubbing are plainly marked, and their diameters can be measured by means of a measuring micrometer.

From Hertz's theory it follows that

$$d_c = 0.00564 \sqrt[3]{dP}$$

d_c being the diameter of the contact circle, d the diameter

of the ball and P the load. According to Stribeck, the maximum safe load for flat plates is

$$P_{max} = 700d^2,$$

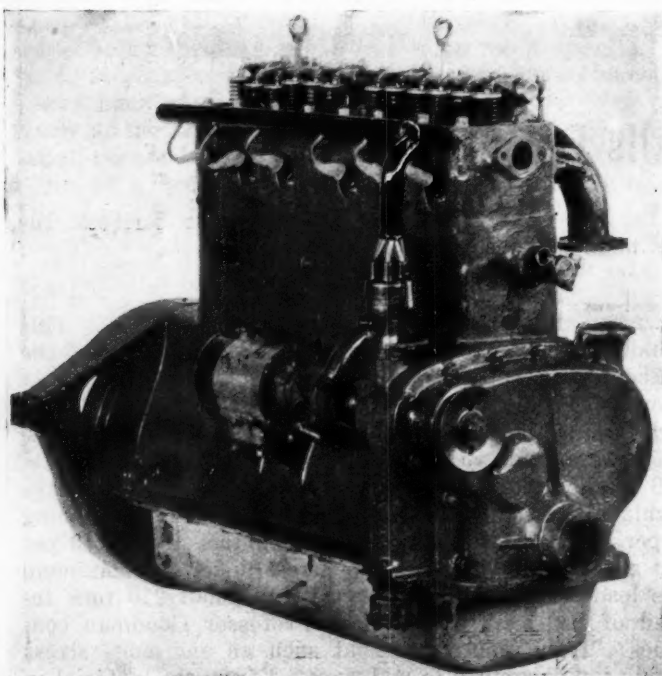
and when the maximum load is reached $d_c = d/20$. This would show that the maximum stress at the center of the contact area (one and one-half times the mean stress) amounts to 240 tons per sq. in. when the maximum safe load is attained. Professor Goodman's experiments, which were made on balls ranging in diameter from 1 in. to 8 in., showed that the actual contact area exceeds the calculated area by from 6 to 21 per cent, the average being 13 per cent. Therefore, the actual contact area is 13 per cent greater and the maximum stress under the maximum safe load is 11.5 per cent less, being about 210 tons instead of 240 tons per sq. in. Professor Goodman concludes: "It is remarkable that such an enormous stress as this can be applied to and removed from the material in a steel ball for hundreds of millions of times without producing fracture, but such is the case."

Six-Cylinder Passenger Car Engine Announced by Wisconsin

Will be built in addition to truck power plants. Has overhead valves, $3\frac{3}{8}$ in. bore and 5 in. stroke. Rated at 75 horsepower at 3000 r.p.m. Piston displacement is 268.3 cu. in. Designed for high class cars. Spark plugs mounted in detachable head.

THE Wisconsin Motor Mfg. Co. is now manufacturing a six-cylinder $3\frac{3}{8}$ by 5-in. overhead valve engine suitable for passenger cars. The new engine is rated at 75 hp. at 3000 r.p.m., and in block tests developed 30 hp. at 1000 r.p.m. and 50 at 1700. This output is secured with a compression volume of 21 per cent of the total. The piston displacement is 268.3 cu. in.

The engine has been designed to meet the requirements of assemblers of high class cars. Its dimensions throughout are ample and the materials have been selected with a view to lightness, performance and endurance. A transmission can be combined with the engine to form a unit powerplant with three point suspension. The block and the upper half of the crankcase are a single grey iron casting, while the cylinder head is cast separately of similar material and is fitted with an aluminum cover. The valve mechanism and spark plugs are mounted in the detachable head, the valves being overhead and the spark plugs in the right side of the head. All of the electrical equipment is on the right side of the engine, while the carbureter and gas passages are on the left. The oil pan is of aluminum and the front gear cover, which is a separate casting, is of iron.



Wisconsin passenger car engine

The pistons are grey iron castings with four rings all above the pin. There is an oil scraper groove in the piston below the pin and a stiffening flange at the lower end of the piston skirt. The pistons are 4 in. in length. The piston pins are keyed in the pistons and located endwise by spring wire snap rings. Bushings are fitted in the upper end of the connecting rods. The diameter of the piston pin is $1\frac{1}{16}$ in. The connecting rods are 12 in. in length and are drop forged, I-beam section. The crankpin bearings are $2\frac{1}{2}$ in. in diameter and $1\frac{1}{2}$ in. in length. The crankshaft is supported on three main bearings, all of $2\frac{1}{2}$ in. diameter, the length (front to rear) being $2\frac{1}{8}$, $2\frac{3}{4}$ and $2\frac{3}{4}$ in. The crankshaft is a curved cheek type and is drop-forged from 45 per cent carbon steel, heat treated.

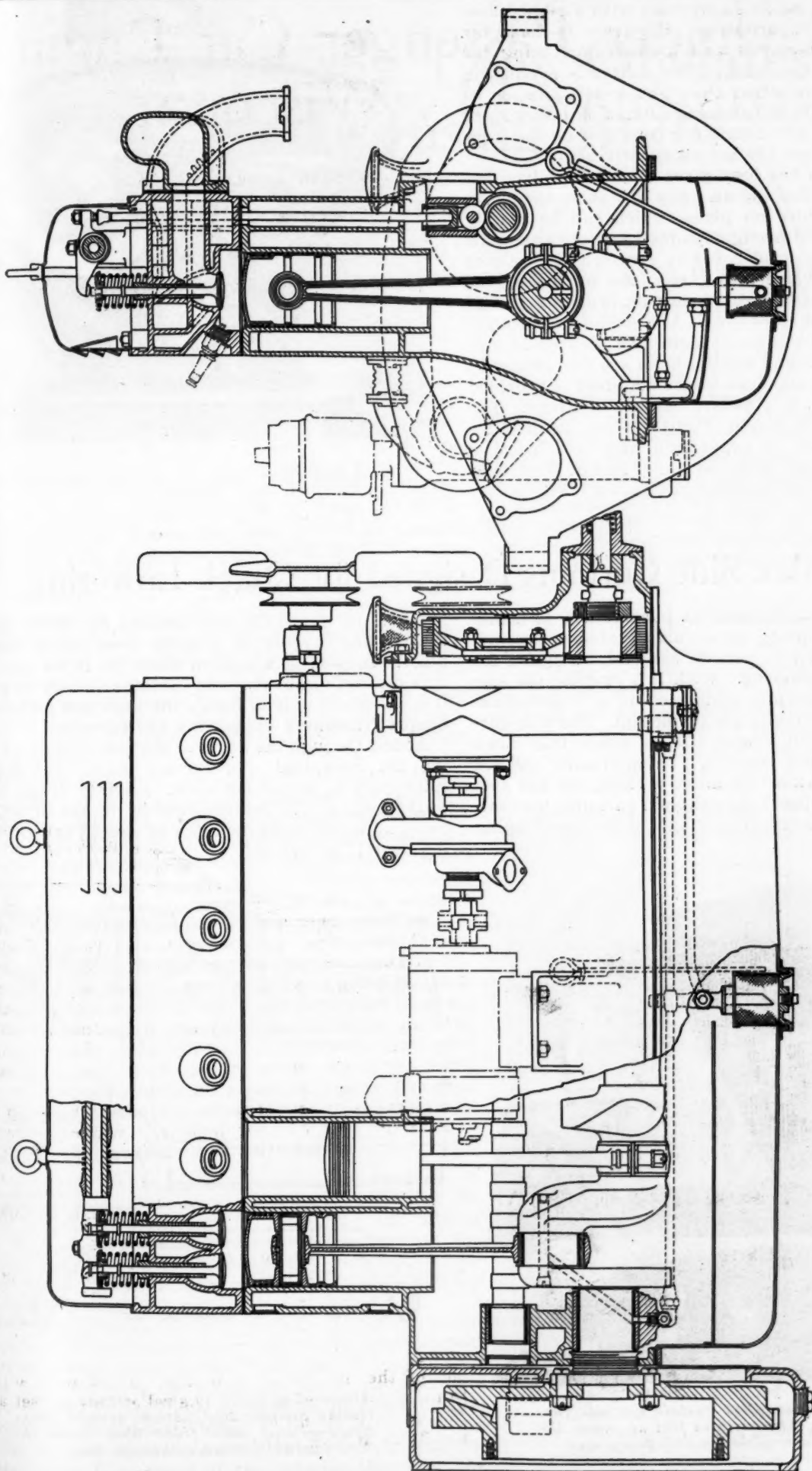
Valve Drive Described

The valve drive is a Link-Belt silent chain with the tension controlled by means of an automatic spring idler contacting with the back type of chain. The camshaft is a forging of 0.20 per cent carbon steel with the cams carbonized and hardened. The cam faces are held to a scleroscope hardness of from 75 to 80. The camshaft is carried on three bearings of the following dimensions (front to rear): $2\frac{1}{16}$ by $1\frac{13}{16}$ in.; 2 by $1\frac{3}{4}$ in. and $1\frac{3}{4}$ by $1\frac{1}{2}$ in.

The valve push rod is actuated by a roller follower which bears directly on the cam. The push rod actuates the rocker arm through the adjusting stud, the adjusting nut being in an accessible position above the rocker arm. The valves are $1\frac{21}{32}$ in. diameter overall and $1\frac{1}{2}$ in. in the clear. They are of chrome silicon steel and open directly into the combustion chamber through cast iron valve guides in the head. The valve springs are of 7 gage (.180 in.) steel wire.

Cooling is by centrifugal water pump, the pump being of cast iron with bronze impeller. Water is circulated completely around the valve passages and spark plug bosses. The fan is mounted on a boss at the forward end of the block.

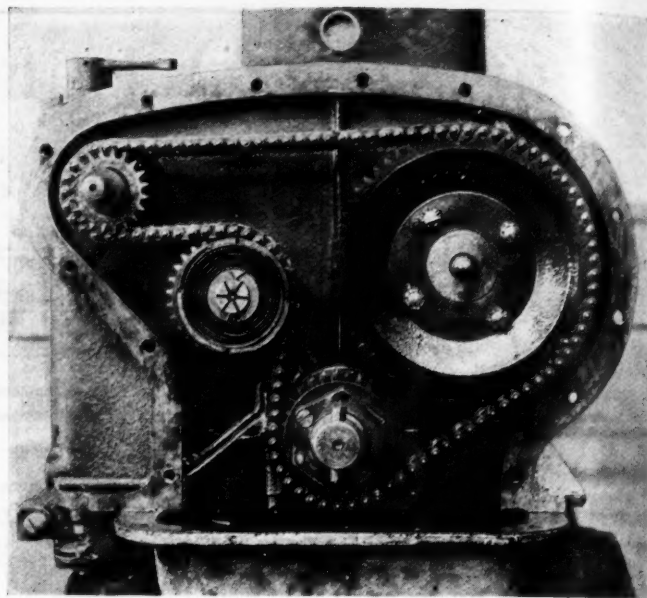
Lubrication is by pressure feed throughout. The oil is forced through the hollow crankshaft to all bearings by means of a gear pump driven off the center of the water pump driveshaft. A separate oil lead is connected with the hollow rocker lever shaft to supply positive lubrication to all the rocker levers. The oil pressure relief valve is located at the rear end of the main line outside of the crankcase, so that the pressure at the end of the line rather than that immediately adjacent to the pump is controlled. The relief valve is set at the factory to hold the oil pressure at 10 lb. at low speed and 35 lb. at high speed.



Side and end section views of new Wisconsin passenger car engine. Valve mechanism and spark plugs are mounted on a detachable head

The manifolding is on the left side of the engine and a hot-spot type of intake is provided with a ribbed heat wall to assist in vaporization. Provision is made for fitting an electric starter and a generator, using the S. A. E. standard mounting. The starter is carried on the bell housing, on either the right or left side, so as not to interfere with the steering column on either right or left drive cars. The distributor is located on the front end and driven from the accessory driveshaft.

Special attention has been given to serviceability features throughout the engine. For instance, the valve tappets are assembled on plates which can be readily removed without disturbing any other part of the engine. When the cylinder head cover is removed it discloses the rocker arms, valve stems, etc. All of the engine bearings are accessible from below on dropping the oil pan. The bolts and studs are S. A. E. standard throughout and the large bolts have castle nuts secured by cotter pins. The studs and smaller bolts are provided with lock washers. The standard intake manifold is provided with a 1½-in. S. A. E. standard carburetor flange. The engine has an overall length of 49 13/16 in., the distance between the centers of supporting arm bolt holes is 24½ in. and the height from the center line of the crankshaft to the top of the cylinder head cover, 25¾ in.



Link-Belt silent chain drive used on Wisconsin engine

Simplex Side Curtains Designed for Quick Lowering

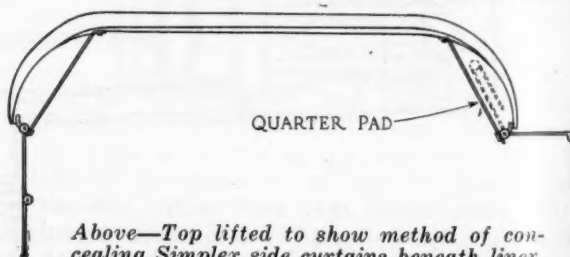
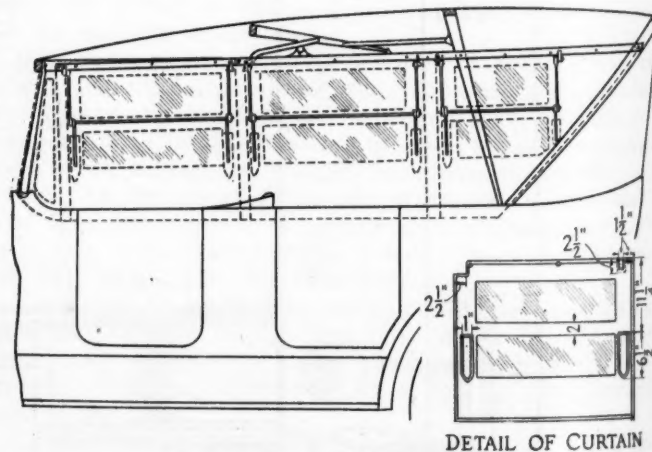
THE Simplex Auto Curtain Co. is exhibiting to manufacturers and fitting to a number of experimental cars a new type of side curtain assembly designed for quick raising and lowering. With this curtain, the side curtains are permanently connected to a longitudinal piece running along the inside of the top. The side curtains are mounted on hinged frames which fold down from the longitudinal member. These frames are not only fitted with quick-acting hinge devices, but are also so designed as to support the celluloid curtains, preventing them from wrinkling or folding and thus prolonging their life.

When not in use the side curtains are folded up inside the top and covered by a lining piece which buttons in place. In case of a sudden storm or if for any reason it is desired to put the side curtains quickly in position, it is necessary only to loosen the liner and pull down the hinged framework supporting the curtains.

Access through the doors of the cars is secured by lifting the individual side curtain panel over the doors sufficiently to permit entrance. Another design is being worked out at the present time by means of which the panel adjacent to the door can be opened and closed with the door if so desired.



Diagram of Simplex Auto Curtain Co. side curtain installation. The curtains fold up inside the top and are accessible for emergency use



Above—Top lifted to show method of concealing Simplex side curtains beneath liner. Below—Panel over front door raised to permit entrance through door

Novel Headlight Lens Obviates Need for Focusing Bulbs

New device described at Metropolitan Section meeting of S. A. E. Paper by R. N. Falge and W. C. Brown discusses new aspects of the lighting problem. Practical demonstration given to gathering of engineers. State officials try to coordinate vehicle laws.

A NOVEL headlight lens, which obviates the need for focusing the bulbs of headlamps, was demonstrated at the September meeting of the Metropolitan Section of the S. A. E., which was held at the Automobile Club of America last Thursday evening. The paper of the evening was by R. N. Falge and W. C. Brown and covered largely the same ground as a paper by the same authors presented at the S. A. E. Summer Meeting at Spring Lake.

For best results it is necessary that the beam of light thrown ahead by the headlamps be spread out horizontally to illuminate the ditches and the sides of the road. One fact that affects the distribution is that the light source is not a point but a filament that cannot be wholly concentrated at the focus. The further from the focus any element of the light-giving surface happens to be, the more the rays from it will diverge after being reflected.

Where the design of the lens is such that the light from different sections of the reflector is bent and spread by varying amounts to improve the distribution, the real advantage in horizontal prisms is obtained. It is thus possible to place the maximum candle power near the top of the beam where it will be projected farthest down the road. The intensity can be made to fall off toward the bottom and the sides of the beam to give a smooth, even illumination on the road. This is desirable, for a bright spot on the road reduces the visibility of points beyond. Prisms can also be designed to increase the width of the beam gradually from the top to the bottom, to illuminate the roadsides near the car and to assist in making turns. They make it possible to insure a fairly sharp cut-off at the top of the beam, even with rather inaccurate reflectors, and to provide a low-intensity, diffused light above the horizontal.

Securing Good Adjustment

Even when the equipment is good, the problem of securing proper adjustment still remains. With all devices in general use today, both focusing and aiming are required. It appears impossible to eliminate the aiming adjustment; to eliminate the focusing adjustment is both possible and practicable and something that probably will be realized in the near future.

Focusing is necessary with ordinary non-glare equipment because for satisfactory results the lamp filament must be placed nearer to the focal point of the reflector than the tolerances to which the lamp manufacturers have heretofore been able to work in locating the filament in the incandescent lamp.

The filament must be located so accurately with respect to the focal-point of the reflector that even the

tolerances to which the precision lamps (a development of the past year) are made, do not permit of eliminating the focusing adjustment. However, experience with machine methods of manufacture has led the National Lamp Works to believe that the time when lamps will be made with sufficient accuracy to permit the use of a fixed socket is not far distant. In the meantime, manufacturers of non-glare devices are endeavoring to design equipment that are less sensitive to small variations in the filament location.

Variations Removed

With the lens shown in Fig 1, it is possible with fairly accurate equipment to compensate for the commercial variations in the filament positioning in the reflector and at the same time distribute the light very effectively in the beam. It takes advantage of the fact that rays reflected from a parabolic surface converge or diverge as the light source is moved ahead or back

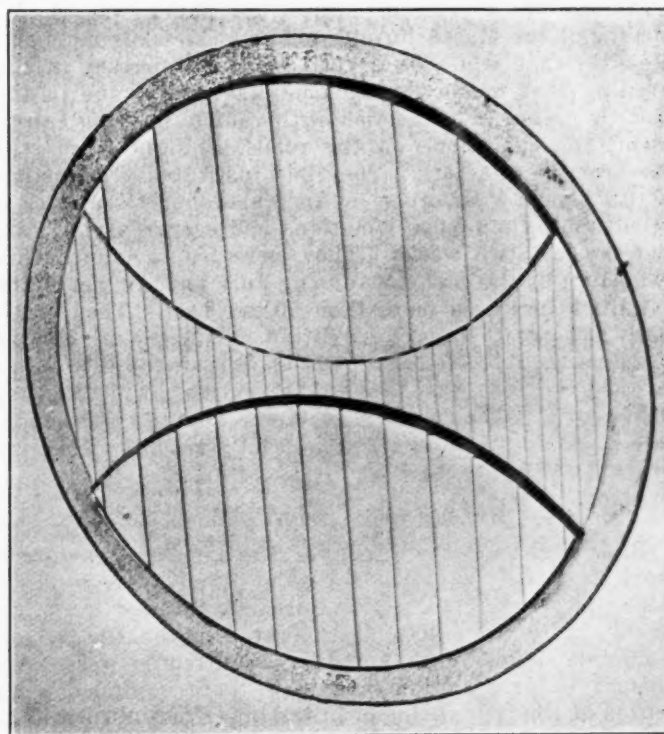


Fig. 1—A lens designed that simplifies headlamp adjustment by eliminating the necessity for focusing

The photograph from which this illustration was made was taken at an angle to emphasize the prisms

of the focal-point. The light-rays passing through the middle zone are tilted downward slightly and form the upper part of the beam. As the filament is moved forward or backward, the rays in this zone coverage or diverge laterally and maintain the top, or cut-off, of the beam substantially at the level of the head-lamp. The rays of light from the upper and lower zones tend to rise or fall as the lamp is moved, but they are deflected downward sufficiently by prisms so that they will not rise above the top of the beam from the middle zone when the filament is moved forward or back of the focal point through predetermined and relatively wide limits. Incidentally, beams from reflectors that are surfaces of revolution but not truly parabolic in contour ordinarily

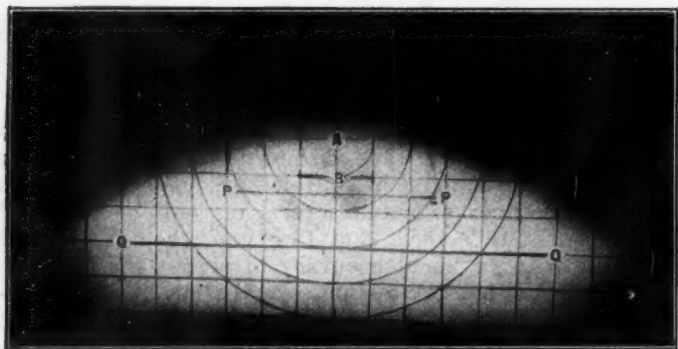


Fig. 2—Cross-section of the beam from head-lamps equipped with non-focusing lenses

will have a sharper cut-off at the top with this design of lens than with others that spread the beams.

The axial variation of $3/64$ in., to which these same tipless precision lamps are manufactured, is also acceptable. Axial variations tend mainly to raise or lower the entire beam without seriously distorting it. They may be compensated for with a fair measure of success by aiming the head-lamps.

Among those who discussed the paper was A. W. Devine of the Massachusetts Motor Vehicle Department. He said that while he agreed with the speaker of the evening that much improvement has been made in the last two years in connection with vehicle lighting equipment, the conditions on the roads at night were still far from satisfactory. They had instituted a campaign of lighting law enforcement in Massachusetts and as a result more than 5,000 violations had been reported during the last two weeks. They were led to launch this campaign by the fact that during July and August night fatalities increased more than 50 per cent. They originally set out to improve lighting conditions in Massachusetts nearly three years ago and obtained quite satisfactory results. Then for eight months, owing to conditions within the department, it was impossible to maintain the same vigilance and all that was gained by two years' persistent effort was lost again.

Bureau of Standards Work

R. E. Carlson of the Bureau of Standards spoke on some work in connection with head-lamp illumination recently done in Washington. The Bureau conducted tests on headlights of over 400 cars operated in the District of Columbia that were voluntarily submitted for test. Although 72 per cent of these cars were equipped with lenses of the type included in the approved uniform list, only five and one-half per cent of these headlights were in good condition.

A communication from F. H. Ford, of the C. H. Shaler Co., was read in which the advisability of standardizing so-called non-focusing head-lamps was doubted. Ford

intimated that this might lead to a patent monopoly and thus stifle progress. In reply, the author of the paper said that it was not the intention of his company to commercialize the lens described, but to release its manufacture to any one wishing to take it up.

Further discussion brought out the fact that the desired lateral spread of the rays can be obtained with the reflector alone, and this principle is now utilized in the Chevrolet lighting equipment. The Motor Vehicle Conference has so far authorized the use of 27 lighting devices (lenses). Devine said that in his State, among 400 fatal accidents investigated, at least three were due to insufficient light to every one due to glare. In a communication protest was raised against the complex instructions for adjusting lamps, which bristled with unfamiliar technical terms and were beyond the understanding of the average motorist. Devine said that in Massachusetts they had reduced the instructions to the simplest possible form. The motorist was told to place his car at a distance of 25 feet from the side of a barn or some other plane surface and then adjust his bulbs until he obtained an illuminated area similar in shape to one shown in the instruction sheet. Then he should aim or tilt the lamp to bring the top line of the illuminated area substantially on a level with the lamps themselves.

Thermodynamics of Automobile Engines

AUTOMOBILE engineering is being taught at a number of universities and technical schools throughout the country, and courses in automobile mechanics are being given in manual training schools and even in high schools. As an aid in imparting instruction to classes in this line of study there is need for text books adapted to the previous training of the students. A book of this nature has been issued recently by the McGraw-Hill Book Co., Inc., the author being Erwin H. Hamilton, a member of the Department of Mechanical Engineering of New York University. The title of the book, *Elementary Thermodynamics of Automobile Engines*, is somewhat misleading.

In a book dealing with such a circumscribed subject as the thermodynamics of a particular class of engine one would expect a very thorough treatment; as a matter of fact, instead of dealing only with the thermodynamics the book also deals with the mechanical features of the engine, with problems of design and operation and with engine tests. Only a few of the chapters relate to the thermodynamics of the engine and this subject is handled rather superficially.

A better characterization of the book than the title would be "an elementary text book on automobile engines for engineering students." The functions of the various parts of the engine are explained in simple language, and in addition to the standard type of automobile engine (the Otto or four-cycle poppet valve type) some attention is given to two-stroke cycle, Knight sleeve valve, rotary valve and Diesel engines.

As an introduction to the subject matter proper there is given "A Brief History of the Automobile." The author starts out by saying in substance that George B. Selden does not deserve credit for having built the first automobile, for there seems to be no record of his having built one prior to 1905, and then refers to the early work of Cugnot and Trevithick. What is rather remarkable is that Daimler and Benz, the pioneers of the gasoline automobile industry, receive no mention in this brief history. It is the same as if the name of Morse were omitted from a brief history of the electric telegraph.

A feature of the book is examination questions at the end of each chapter.

Chandler Adopts New Type of Gearset for 1924 Model

Unit is manufactured under Campbell patents. Does away with necessity for sliding gears into mesh laterally by the use of a system of keys. Full pressure oil feed system installed. Minor refinements have been made in bodies and color options added.

THE most notable change in the Chandler car for 1924 is the adoption of a new type of gearset which is being manufactured under the Campbell patents. This gearset does away with the necessity for sliding gears into mesh laterally or clashing them, and effects changes of gear by means of a system of sliding keys. The general arrangement of the gears and shafts is substantially the same as in the conventional form of gearset. That is, there is a primary shaft which connects to the clutch and which carries what is usually referred to as the constant mesh pinion, which latter runs together with the constant mesh gear on the secondary shaft. Of course, the term "constant mesh" loses its significance in this case, as all of the gears remain in mesh constantly. In line with the primary shaft is the third motion shaft, which can be locked to the primary shaft by means of a positive clutch of the internal and spur gear type, for the direct drive.

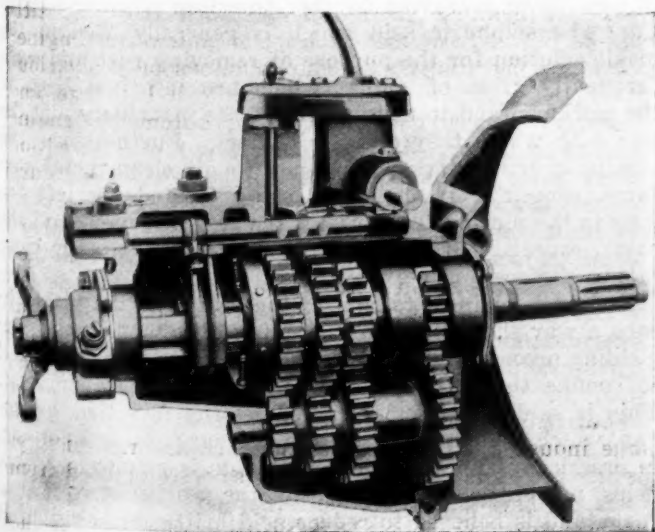
The secondary shaft, in addition to the constant mesh gear, carries pinions for the intermediate and low speeds and for the reverse. These pinions remain constantly in mesh with corresponding gears on the third motion shaft, which gears normally turn freely on that shaft. It is in the means used for fastening or locking these gears to the third motion shaft that the chief novelty of the design lies. All of the gears are mounted on collars or rings which act as supporting bearings. The gears are locked to the shaft by means of sliding keys which can be moved endwise through semicircular grooves in the shaft until they are under the ring corresponding to the gear which it is desired to engage. When the keys have reached this posi-

tion, they are automatically rotated around their longitudinal axis and the lugs on them engage with teeth which are formed on the inside of the gears. When in the neutral position the keys lie wholly within the grooves in the shaft, the lugs on the keys then being depressed under the bearing rings on which the gears revolve. When the keys are shifted the lugs clear these rings. When the keys are being withdrawn from engagement, the sloping sides of the lugs act as cams bearing against the beveled edge of the bearing rings, thus depressing the lugs. Spring plungers bearing against the flattened surface of the keys snap them into engagement. As soon as the key starts to turn into engagement, the pressure of the gear carries it all the way to its proper position. One of the keys takes the driving stress, while the other takes up backlash. With this gearset there is nothing in the way of using the engine as a brake.

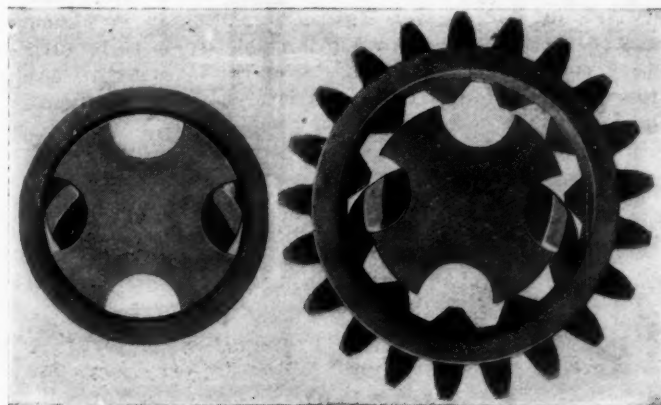
Gear Engagement Easy

The advantage claimed for this form of transmission gear is that any gear can be positively engaged at any time. This not only dispenses with the need for a high degree of skill on the part of the operator in order to obviate clashing, but it also adds to the element of safety, as in going down steep hills, if the brakes should fail to hold or burn out, it is always possible to engage one of the lower gears and then use the engine as a brake. It is believed that women will particularly appreciate the advantage of the new gearset, which has been named the traffic transmission.

A number of other changes have been made in the



Vertical section through the traffic transmission



Sliding key mechanism of the traffic transmission. The view on the left shows the keys in the neutral position, depressed below the bearing rings, while the view on the right shows them in the locked position, in engagement with internal teeth on the gear wheel

chassis and body. The most important mechanical change is the adoption of full pressure oil feed for the engine, which is said to have rendered the engine more silent.

A full line of new bodies was brought out by Chandler only last January, but a number of refinements have been made in these. The distinguishing mark of the 1924 line is a polished aluminum bead between the cowl and the hood. The bead is secured to the cowl and, besides adding to the appearance of the car, it serves to protect the body finish when the hood is raised or lowered. On all open models guard pads of polished aluminum have been added, to prevent scuffing of the apron by the feet as the passengers enter or alight.

Besides the two dark colors that have been standard during the present year, Chandler now offers purchasers an option of dark blue, dark green, maroon, light blue, red and light green. Each model now has gold striping.

All models are continued. The closed cars include the limousine and three sedans, two-door five-passenger, the



Sliding keys of the Traffic transmission by which the gears corresponding to the different speeds are locked to the third motion shaft

Chummy, the four-door five-passenger Metropolitan and the seven passenger. The open cars are the four-passenger roadster, the four-passenger Royal Dispatch sport model and the five and seven-passenger phaetons. Prices remain unchanged.

Pneumatic Oscillating Tapper Prevents Breakage of Tappets

A PNEUMATIC oscillating tapper, designed to automatically prevent tap breakage and to increase speed, has been brought out by the W. Gaterman Mfg. Co. The manufacturers state that the automatic machine has been designed to closely imitate hand tapping, but to be more sensitive, as the working strain upon the tap is weighed closely by an adjustable spring balance drive on the tap. The machine is unusual in that it does not depend upon slippage to prevent tap breakage, but upon pneumatic action, which automatically oscillates the tap spindle the same as is done in hand tapping when the strain on the tap becomes excessive. It is claimed that the backing up or oscillating motion begins instantly, but takes place only when it is necessary to prevent tap breakage. The load on the tap is carried

by a cushion coil spring to deaden the shock on the tap and the machine.

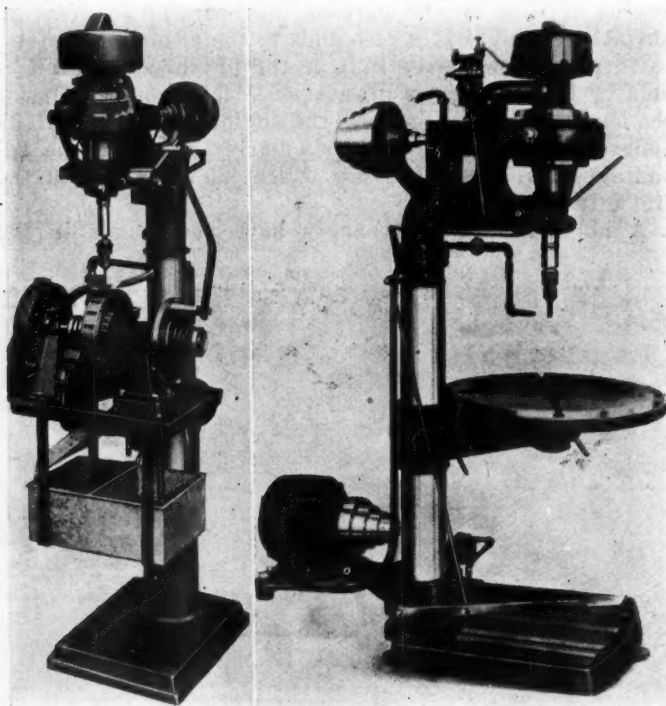
As a measure of the speed, it is claimed that the machine will tap No. 29 wire drill holes with 10-30 bottoming tap in steel running at 800 r.p.m. The stress on the tap is regulated by a knurled adjustment and the depth to which the tap operates is also adjusted. By setting these adjustments and the tap feed adjustment, the tap automatically feeds in and returns.

The machine is made in two sizes, designated Nos. 4 and 8. The capacity of No. 4 in steel is from $\frac{1}{8}$ to $\frac{5}{16}$ in. and of No. 8 from $\frac{1}{4}$ to $\frac{3}{4}$ in. The height overall of No. 4 is 60 in. and of No. 8, 70 in. No. 4 is driven by a $\frac{1}{2}$ -hp. motor and No. 8 by a $1\frac{1}{2}$ -hp. The weights of the two machines are 375 and 850 lb., respectively. The spindle travel on the smaller machine is $2\frac{3}{4}$ in. and that on the larger machine 3 in. The smaller machine has three-spindle feed and the larger four-spindle.

New Material Designed to Improve Pickling

A MATERIAL termed Rodine, intended to overcome various adverse conditions encountered in pickling, is now being marketed by the American Chemical Paint Co. The sulphuric acid which is generally used in the pickle solution for the purpose of removing rust and scale frequently gives off fumes which are injurious both to the workmen and to metal parts of the machinery and the like with which they come in contact. Furthermore, the sulphuric acid attacks and tends to pit clean metal surfaces, especially if the parts being treated are left too long in the pickle. This wastes the acid and may spoil the parts, especially if they are threaded or have other close fitting surfaces.

Rodine is claimed to control the action of the pickle in such a way that all of the foregoing disadvantages of the pickling process are either avoided or minimized. It is said to confine the action of the acid to the scale and rust. This is said to be demonstrated by the fact that hydrogen, which is liberated freely in ordinary pickle solutions, is practically suppressed when Rodine is employed. This helps prevent contamination of the atmosphere of the room, and is believed to reduce acid brittleness attributed to the absorption of hydrogen by the metal.



No. 4 pneumatic oscillating tapper made by the W. Gaterman Mfg. Co., equipped with automatic indexing attachment for chucking work and also automatic spindle feed



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The FORUM



Litle Believes Better Brakes Are Needed

Says four-wheel type has some advantages but considers that these are outweighed by weaknesses in models thus far tested.

Editor AUTOMOTIVE INDUSTRIES:

In commenting on the necessity for four-wheel brakes on American cars I would say that the necessity surely exists for better brakes than are at present in vogue. Most American cars are equipped with brakes which are just about adequate to brake the car when all adjustments are perfect and the brake lining is dry and intact, but very few designers have ever discounted this ideal condition so that the car can be controlled without making continual adjustments.

It is not really necessary to adopt four-wheel brakes to correct this condition, for brake drums can be made larger in diameter and brake lining can be made wider on all cars to very good advantage. Furthermore, there has been recently developed a brake lining which has a higher coefficient of friction and a greater life than anything that has preceded it. By grouping these improvements the engineer can very greatly improve the braking conditions.

However, equipment conditions being the same, four-wheel brakes are immensely better than two-wheel brakes if properly designed. I have carefully observed several four-wheel brake systems and on test they have all developed weaknesses which are too serious to warrant their immediate adoption. Some of them are not properly equalized; others controlled by cables have to be frequently adjusted on account of cable stretch, which is certainly a step backward. Still others, containing the servo attachment for augmenting the mechanical operation, are unnecessarily trappy, while still others interfere with steering at the critical moment in avoiding a collision.

If a four-wheel brake system cannot be applied to the car without increasing the pedal pressure over that necessary for the operation of two brakes, then it had better be left off the car.

From the standpoint of brake lining wear, four-wheel brakes have an enormous advantage over two-wheel brakes on account of the great increase possible in braking area. From my own experience I prefer external brakes to internal brakes: First, because they can be made lighter; second, because, requiring so little effort to operate them due to the self-wrapping action of the bands, it is not at all necessary to employ the servo system, which is necessarily trappy and complicated. Or if the servo attachment is not used, then the pedal pressure becomes unnecessarily great with internal brakes.

Internal brakes, while apparently good from the standpoint of being encased against road dust, have the unfortunate property of retaining oil and water over a greater period than do the external brakes. Internal brake drums, unless they are heavily reinforced by many circumferential ribs, distort badly under load, braking the car in jerks.

Also internal brake shoes must be provided with very deep sections occupying almost the entire interior of the drum to prevent chattering. The adjustment of external brakes is much more readily understood and easily accomplished than the adjustment on the internal brakes.

The most perfectly equalized brakes to date have been those operated hydraulically. The practice of using the two rear brakes for emergency out of the group of four may be considered to conform with certain State laws which call for an emergency brake to be entirely independent of the regular service brake, but I believe this construction of the law is questionable and will have to be adjudicated in the very near future.

THOMAS J. LITTLE, JR., Chief Engineer,
Lincoln Division, Ford Motor Co.

Stopping Distances

Editor AUTOMOTIVE INDUSTRIES:

In reading over P. M. Heldt's article relative to brake design, I find that an error has been made in the stopping distance for a two-wheel brake car (see page 258, right-hand column),

$$\frac{44}{11.55} = 3.81 \text{ sec.}$$

$$\frac{3.81 \times 44}{2} = 83.8 \text{ ft.}$$

We can also obtain the above by the following method:

$$FS = \frac{1}{2}MV_1^2 - \frac{1}{2}MV_2^2$$

F = resultant effective force

S = distance through which the force acts

$$\frac{1}{2}MV_1^2 = \text{initial kinetic energy} = \frac{1}{2} \frac{W}{g} V_1^2$$

$$\frac{1}{2}MV_2^2 = \text{final kinetic energy} = \frac{1}{2} \frac{W}{g} V_2^2$$

$$F = \mu W \times 0.6 = 0.6 \times 0.6 = 0.36W$$

W = total weight of car

$$\frac{1}{2}MV_1^2 = \frac{1}{2} \frac{W}{32.2} \times 44 \times 44$$

$$\frac{1}{2}MV_2^2 = 0$$

$$FS = \frac{1}{2}MV_1^2 - \frac{1}{2}MV_2^2$$

$$0.36WS = \frac{1}{2} \frac{W}{g} \times 44^2 - 0$$

$$S = \frac{44^2}{2 \times 32.2 \times 0.36}$$

$$S = 83.8 \text{ ft.}$$

It was through this method that the discrepancy was seen. The above result also shows that the stopping distance is independent of the weight of the car.

ALEXANDER J. NEWMAN.

Accessible Brake Adjusting Parts

Editor AUTOMOTIVE INDUSTRIES:

In this movement and much comment on better brakes, why can't they be made so the average owner can reach them to keep them adjusted, instead of keeping the adjusting parts in the most inaccessible part of the car? The narrow space between brake drum and rim of the wheel calls for a multiplicity of special wrenches, while with disk wheels the brake adjustments cannot be reached at all without removing the wheel.

Why not turn the brake mechanism around, putting the anchor in front and the levers and adjusting screws in the rear of the axle? This would require making the brake rods a few inches longer to be run either over or under the axle, but would place these parts where they could be attended to, to be kept adjusted and oiled easily and without an expert to look after them.

I should think this arrangement would be necessary particularly with the coming four-wheel brakes, inasmuch as they require very careful adjustment, but if used with the present two-wheel brake they should give much longer and more satisfactory service.

JOSEPH N. PARKER.

Improved Spring Lubrication Method

Editor, AUTOMOTIVE INDUSTRIES:

The accompanying design shows a spring connection of my invention adapted to a graduated leaf spring, instead of to a tapered laminated spring, as in the original design. The purpose of this design is to provide more adequate bearing surfaces and more convenient lubricating methods than are found in the usual spring connection. It will be noted that the springs are enclosed in a felt-lined, laced boot of oil-proof fabric, and that oil is supplied to the springs by oil channels in the journal segments that direct oil along the upper surface of the main leaf of the spring and into the felt, whence it is distributed to all parts of the spring. The oil channels that lead to the spring itself are restricted in size, to prevent too great a flow of oil into the spring boot.

A valve, which is closed by spring pressure except at intervals when it is necessary to lubricate the springs, is suggested as a method of incorporating the springs in the pressure lubricating system of the engine. This valve may also be used to supply other chassis parts

with oil. It should be located in the proximity of a gage, either on the crankcase or instrument board, that indicates the quantity of oil in the crankcase, so that the amount of oil distributed to the chassis parts and the amount remaining in the crankcase may be determined at a glance.

WILLIAM D. KELLY.

Renault Servo Mechanism Discussed

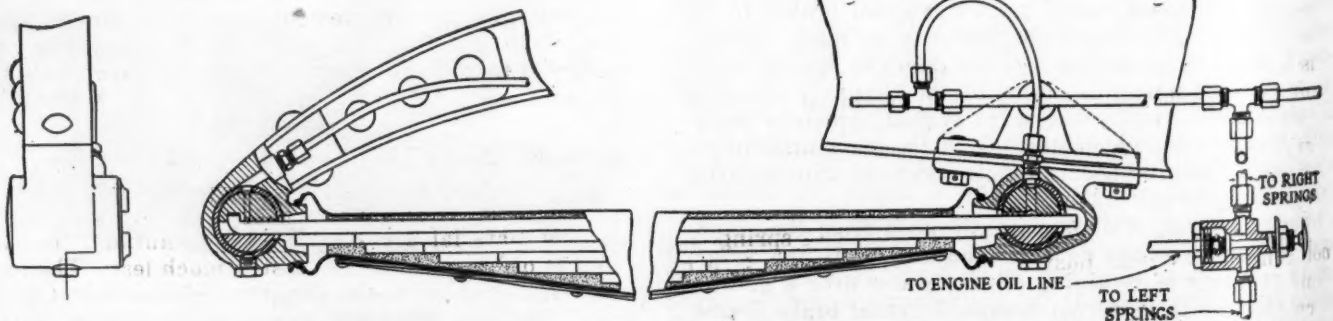
Editor, AUTOMOTIVE INDUSTRIES:

In the issue of your paper of June 21 appeared a description of the four-wheel brake mechanism adopted on the new Renault six-cylinder cars. It appears to me that in one respect an erroneous conclusion was drawn concerning the results obtained through the servo brake employed in this brake system. The servo mechanism in question consists chiefly of a disk friction clutch, the driving plate of which is rotated at a reduced speed by a worm gear from the tail shaft of the transmission. The driven plate of the clutch is pressed into engagement by a screw and nut device, the nut forming the hub part of a lever that is actuated by a linkage from the brake pedal. In this way the foot pressure produces the axial movement for the clutch engagement and furthermore sets up a strong wedging force, comparable with the wrapping force of a band brake. The tendency of the driven plate to rotate with the driving plate furnishes the force for applying the four-wheel brakes.

Now it is said at one place: "The braking effort is interrelated with the speed of the car. This provision prevents the possibility of skidding due to locked wheels," and at another place: "Braking effort is therefore proportionate to the pressure applied at the pedal and the speed of the car."

These conclusions seem to be mistaken. The braking effort, that is, the force, with which the four-wheel brakes are applied, is doubtless proportionate to the torque set up in the disk clutch. This torque, however, is proportionate to the axial force of the clutch, produced by the foot pressure, and proportionate to the coefficient of friction in the clutch. Now it is an established fact that, for unlubricated surfaces at lower velocities, the coefficient of friction is independent of the velocity of rubbing. As the velocities increase the friction coefficient decreases. Consequently, in the best case it would appear that the braking effort in this brake system is independent of the car speed. The description in AUTOMOTIVE INDUSTRIES points out that the disk clutch is driven at relatively low speed. I believe that an important consideration for this reduction in speed was the realization that, with higher speeds, the coefficient of friction, and with it the effectiveness of the whole system, would drop.

WILLIAM SAMUELS.



Novel spring connection adapted to graduated leaf spring

Transmission Brake on Axle Housing

Editor AUTOMOTIVE INDUSTRIES:

I have read with much interest your recent articles on brakes, particularly the last one comparing the transmission brake to the wheel brakes. Having for years had much grief with brakes, I was led to experiment with the transmission brake, and after a while developed one, which, after two years of test, seems to fill all requirements, and to which I have not as yet been able to discover any objection. I take the liberty of inclosing herewith a blueprint of same in section, as applied to our taxicab model axle.

You will see at once that with this brake, which we have named the Vig-Tor central service brake, the torque reaction does not affect the springs, neither does the application of this brake cause chattering from loose universal joints, and, which is important with this brake, its position on the drive shaft causes the seepage of oil, which is always present, to soak in around the lining. This has the effect of reducing the abrasion and increasing its life, and it is truly remarkable how long a set of linings will last before it needs renewal. When it does need renewal, however, the brake drum is removed and pushed up over the universal joint, the shoes are unhooked and exchanged, all in a few moments.

It should be noted here that the gear sectors actuating the brake cam are geared to give a throw of 90 deg. to about 35 deg. of the actuating lever, and no adjustment or attention is ever needed except for renewal; as no grit or dirt can get into it, a car may run 10,000 miles or more before renewal becomes necessary.

We have never been able to get the brake drum hot enough to discolor the paint originally put on the outside of the drum, and it is still there after 30,000 miles with no other brake in use, and this we attribute to its position where it is always meeting new cool air.

Due to the seepage of oil, as mentioned above, the inside of the brake drum becomes highly polished, yet it takes very little physical effort to slide the wheels. At the same time, the action of the brake is extraordinarily smooth and absolutely noiseless.

VIGGO V. TORBENSEN,
President, The Vig-Tor Axle Co.

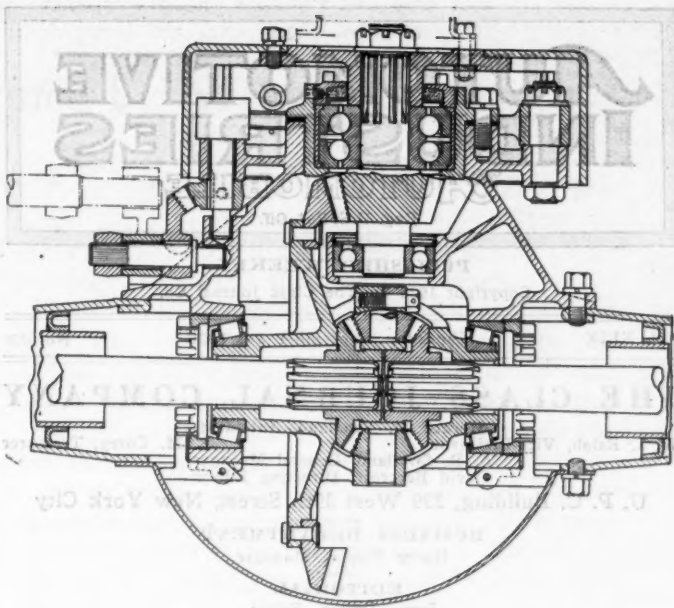
Easier Riding Buses

Editor, AUTOMOTIVE INDUSTRIES:

I read the editorial on "Making Buses Ride Easier" in your issue of Aug. 23 with great interest, on account of the fact that I have for the past two years devoted considerable time and energy in an endeavor to design an acceptable spring suspension for this purpose.

There is no question in the mind of any person who has given the matter of comfortable riding any thought, that there are very few good, easy riding motor buses until they are loaded with passengers. I have ridden in motor buses over apparently smooth pavements as the sole occupant of the vehicle, and have found it almost impossible to keep my seat due to the excessive vibration. As to carrying on a conversation under such conditions, it is impossible while riding in a jolting, solid tired, heavy sprung motor bus.

Solid seats, solid backs, solid tires and solid springs do not comprise a solid business proposition in the face of competition. An operator of a motor bus line making use of such equipment could quickly be put out of business by an up-to-date competitor who furnishes comfortable and easy riding vehicles driven safely and sanely by careful and



Transmission brake design

responsible drivers instead of the callow youths sometimes seen at the wheel.

While spring cushions and upholstered seat backs play their part in attaining the desired object of easy riding, their effect is almost negligible unless the spring suspension is so designed as to eliminate the short, sharp and disagreeable jolts to which so many of our buses treat their patrons. Long, flexible springs, with a load compensating device and rebound check incorporated in the design, would tend to dampen the vibration and iron out the road.

The day is rapidly passing for the man who thinks he can buy a motor truck chassis and on this chassis mount a body, with seats for passengers, call it a bus and get away with it. A certain amount of jolting may be beneficial to some portions of the human anatomy, but people do not patronize motor buses for this purpose.

The bus industry is still in an evolutionary stage, and some few of our manufacturers are now beginning to realize that motor bus passengers are entitled to some special privileges not accorded to merchandise, and are designing chassis more in keeping with the requirements.

Overgeared transmissions with standard stub teeth are another drawback to comfortable riding, as mental comfort is as much to be considered as physical ease, and the noise or howl of the overgears is highly obnoxious to the nervous passenger. There is no reason why the overgearing should not be operated through a clutch and constant mesh gears with herringbone type of teeth, or by a silent chain drive.

Subframe mounting of a six or more cylinder motor, amidship transmissions, under inflated pneumatic tires, with the possible improvements before mentioned, should result in a product that, mechanically, should be more worthy of the title of the "ultimate" bus than those from which we now suffer.

E. FRANKLAND.

A NON-MAGNETIC cast iron is being produced by Ferranti, Ltd., of Holliswood, Lancashire, England. The magnetic permeability and machining qualities of the new material are said to be substantially the same as those of brass, while the cost is much less. The material is intended for such parts of electrical machinery as should be preferably non-magnetic. In the automotive field it may find application for insulating blocks for magnetos mounted on cast iron crankcases.

AUTOMOTIVE INDUSTRIES

AUTOMOBILE

Reg. U. S. Pat. Off.

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U. P. C. Building, 239 West 39th Street, New York City

BUSINESS DEPARTMENT

Harry Tipper, Manager

EDITORIAL

James Dalton, Editor
Norman G. Shidle, Managing Editor
P. M. Heldt, Engineering Editor
Herbert Chase, Engineering Editor
DETROIT OFFICE WASHINGTON OFFICE
J. Edward Schipper 26 Jackson Place, N. W.

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Aircraft Development Rapid

THE Pulitzer Race, which will be held next week in St. Louis, serves to focus attention again on aeronautical development. Preliminary trials of planes scheduled to participate in this event indicate that all records for speed will be shattered once more. At least two of the planes entered have been officially timed at speeds far higher than those achieved in the big race last year.

The relation of these racing developments to commercial air transport is indirect, yet none the less important. Just as automobile racing furnished the car engineer means of testing new ideas in design, so air contests are playing their part in developing a safer and better performing airplane.

The past year has seen marked progress in aviation performance. The cross-continent non-stop journey and the air mail New York to San Francisco record flights demonstrated clearly the high degree of reliability which has been reached by the modern

aircraft and powerplant. The latter feat emphasized particularly the effectiveness of proper ground organization in long flights.

Add to these reliability tests the numerous speed records which have been made recently and a picture of constructive achievement is completed such as aeronautical development has not seen before.

Heavy Tractor Exports Gain

FOR some time past the average value of exported tractors has been so low as to indicate that a very large proportion of shipments comprised units in the lowest-price class. A change is shown, however, by the figures for the first six months of 1923. The average value of tractors exported in 1922 was \$450, but it jumped to \$560 for the first half of this year.

This shows a marked increase in the number of larger-sized tractors being shipped abroad, because there has been no change in tractor prices to account for an increased export valuation. This trend is encouraging to a majority of tractor builders. It is logical to believe that it will become more pronounced as the economic situation throughout the world becomes more stabilized and farmers in various countries increase their purchasing power.

Mayor Curley Speaks to the Industry

“THE coming of the automobile solved problems that were vexing the great thinkers of the world, and by the new ideas it generated and the mechanical principles it developed it has revolutionized the relations of man to man, community to community, and nation to nation.” This was the big vision of automotive development expressed by Mayor James M. Curley of Boston in a speech made last week to the Motor and Accessory Manufacturers' Association convention.

Later on in his address Mayor Curley referred to the automobile as “the keystone of our civilization” and pointed out that it is a necessary and essential part of modern life.

The constructive and practical view of automotive problems voiced by the Mayor of Boston might well serve as a guide to other municipal executives throughout the country in their efforts to answer the questions of street building, traffic congestion and parking.

The motor vehicle has become an integral part of our individual and social existence. It has brought with it innumerable benefits, as well as a few vexing troubles. Consequently a constructive approach to automotive questions must involve a realization of the usefulness and efficiency of the vehicle, as well as of the difficulties which have arisen from its growth.

Mayor Curley has done the industry a real service by laying a sound foundation upon which any municipal official may build a motor vehicle policy with full assurance that he will be serving all of the people whom he represents, as well as the thousands of his constituents who are automobile owners.

Taxation Policy Defined by N. A. C. C.

FROM the deliberations of the special committee appointed by the National Automobile Chamber of Commerce to investigate State taxation of motor vehicle fuel, has come a clear-cut declaration of policy on the whole question which the entire industry can indorse.

This platform is, in substance, that taxes should be levied by the States exclusively and that it is up to each individual commonwealth to determine what form the impost shall take, but that under no circumstances should the total amount of revenue exceed the sum required to maintain the improved highways of the State after paying the administration expenses of the State motor vehicle department.

More entangling alliances can be found in the field of taxation than in any other in the entire realm of politics. Unhappily, taxes usually are based on political rather than economic considerations, and the committee has done well to keep its feet off the flypaper. No attempt has been made to indicate the ideal method of applying motor vehicle levies, and all existing fashions are recognized. Motorists are not so much concerned with the form of the tax as they are with the amount, and the committee has recognized this fact in the following:

"Irrespective of the particular form of special taxation any State may adopt—whether annual registration fees based on horsepower, weight or similar factors; or motor fuel taxes—the aggregate amount of these special taxes upon the motor vehicle in any one year should not be more than is necessary to:

"(a) the administration of the State motor vehicle department;

"(b) the maintenance of the improved highways of the State."

The main point at issue is that motor vehicle fees should be used for a specific purpose and should not be increased by some new device every time the State needs money to gild the capitol dome, suppress the Ku Klux Klan or buy new rifles for the National Guard.

Motor vehicles are taxed, theoretically, because they use the public highways. They wear out the highways and they should maintain them in as good condition as they were when built, but they should not be called upon to bear the original cost of roads. That always has been and always should be a tax upon society as a whole, but more especially upon the owners of abutting property.

Practically, however, motor vehicles are taxed for almost everything in some State or other. There are places where it seems to be the purpose to tax them off the roads.

Little fault can be found with the contention that those vehicles which get the most good out of the highways and use them most should bear a heavier tax burden than those which use them only occasionally. This point is covered by the committee in a paragraph which says:

"The total amount of such justified special taxes should be raised in a manner which most equitably distributes the cost among the various classes of vehicles and the units within each class."

Here, again, it is left entirely up to the States. They should determine how much difference there should be in the fee assessed against a Ford, for example, and a 7-ton truck. Admittedly there should be a difference. It might be determined either on a basis of weight or on the relative amount of fuel consumed. In this particular case, Ford owners probably would vote unanimously for weight.

All motor vehicle users will indorse the contention that the State should be the sole taxing agency, excluding Federal, county and municipal governments from this field. Even more important is the assertion that there should be only one form of special taxation, which means that there is no sense in administering taxes in homeopathic doses.

An argument with which all politicians will not agree is that no money derived from motor vehicle taxes should be spent for the maintenance of highways located where the highway transport needs of the State do not require them. Good roads frequently are built where political leaders want them rather than where they will serve the greatest need. The industry agrees with the Bureau of Public Roads that highways should be improved in the order of their importance.

The chief difficulty encountered heretofore in connection with taxation and highway questions has been lack of a definite, logical, carefully formulated platform upon which all citizens interested in motor vehicles could stand and fight for their rights. With a united front, these citizens are numerous enough to insure themselves fair play. The N. A. C. C. has done a genuine service in providing such a platform.—J. D.

Production Fell Off First Week of Month

But There Was One Less Working Day—September Output Will Exceed Year Ago

NEW YORK, Sept. 24—Such reports as have been received indicate that the output of automobile producing plants the first week of the month declined from the total of the week before, in which, however, there was an additional working day. For the reasons that September presents a shorter working period and not all major producers are operating at capacity, the aggregate turn-out of cars this month will fall behind the August figure, although it will go well beyond September of last year.

The falling off in production in September after a spurt in August is not unusual and accompanies a somewhat slackening in sales experienced generally throughout the country. Buying is centered chiefly on closed models, upon which manufacturing schedules are now concentrated. There are few indications of a shortage of cars, either of the open or closed type, in dealers' hands.

The farmer is still an uncertain prospect although sales are reported made at country fairs, where most dealer organizations are staging automobile shows. More extensive use of this medium for increasing sales, points to the determination of manufacturers to realize on their earlier anticipations.

Southeast Good Field

Crop conditions as they affect automobile sales are spotty, the Southeast offering the most encouraging outlook. In that section, cotton has taken on a more wholesome tone and higher prices are being offered to growers. Trade throughout the South has maintained an excellent pace and there is no evidence now of any pronounced slowing-up.

While buying interest in new cars has been stimulated by new models and reduced prices in many lines, these factors have resulted in the accumulation of used cars. Expedients are being adopted by manufacturers and dealers to solve the problem presented by the piling up of such stocks.

Influences that affect the sale and production of automobiles at this season are also being felt in other branches of the industry. Motor trucks are moving slightly better than last month, conservative operating schedules following closely actual con-

Business in Brief

NEW YORK, Sept. 26—Conditions in general may best be described as fair to good. While there have been irregularities in buying, the cool weather, the coming of fall and an active cotton market have helped trade to an appreciable extent. However, while there has been caution, demands for replenishing have been steady and August showed better than July.

There has been considerable activity in automobiles, hardware, shoes, jewelry and cotton and silk manufacturing, but in petroleum a depression is noticeable, with new price cuts in crude and gasoline.

Coal production has increased following the ending of the strike and prices are up about 10 per cent. This, however, only offsets the shutdowns of iron furnaces and the slowing of steel production. While iron and steel prices are easier, they show some irregularity.

Frosts have hurt Northern corn and tobacco, and needed rains in the Southwest have put the ground in good condition for plowing and seeding wheat. The threshing of spring wheat in the Northwestern States is nearing completion, with poor yields of all small grains in North Dakota.

The stock market has been off and reports show it to be quiet and irregular. Bonds responded to a rally and money has been easier. The bank clearings are reported 13.4 per cent better over last week, with a total of \$7,136,465,000. This, however, is only an increase of 4.3 per cent over the corresponding week of last year.

Daily average car loadings show a decrease for the week ended Sept. 8 because of Labor Day and lighter coal movement. The total for the week was 928,858, or 163,709 under the preceding week. Merchandise and miscellaneous freight accounted for 541,871, or more than half of the loadings.

ditions in the sales field. With the greater use of buses as a transportation medium, plant facilities devoted to this type of vehicle are kept actively engaged.

Tire production is feeling the effect of good sized inventories which manufacturers are expecting to be moved early. Some of the plants are increasing schedules but it is unlikely that there will be a wide movement in this direction until more of the finished goods stocks have been liquidated.

Durant May Realign Various Car Units

Reported That Proposed Plan Will Result in Three Different Sets of Dealers

NEW YORK, Sept. 25—While it has not been officially announced by Durant Motors, Inc., it is understood that a distribution plan has been worked out which will result in three different sets of dealers selling Durant products.

As reports have it the Star and Durant will be hooked up together and be retailed by one set of dealers. The running mate of the \$1,195 Flint will be the Eagle Six, which was announced some time ago but which is not yet in production, while the third combination will be the Princeton and Locomobile.

In all likelihood, it is said, the Eagle will be manufactured at the Muncie plant which formerly housed the Durant Six and which was to have been the production center for the Princeton. A change of plans is said to have resulted in sending the Princeton to Bridgeport, where it will be made in the Locomobile factory. As yet only test models have been turned out but it is thought that the complete line will be ready for the New York show.

In this reported realignment of car units, it is said that Durant has in mind matching General Motors with the Star as the Chevrolet's opponent; the Durant pitted against the Oakland and Oldsmobile; the Eagle battling with the Buick Four; the Flint as a rival of the Buick Six; the Princeton to meet Cadillac competition, while the Locomobile heads the list as the highest priced American car.

Commerce Truck Buys Factory in Ypsilanti

DETROIT, Sept. 26—The Commerce Motor Truck Co. has taken over the Ypsilanti plant, formerly occupied by Apex Motor Corp. and the Saxon Motor Car Co., and will be in production of its complete line of trucks there next week. The Detroit plant has been sold by Commerce to the Nizer Corp., a subsidiary of the Arctic Ice Cream Co., which will manufacture refrigerators.

In removing to the Ypsilanti plant, President W. E. Parker said there would be no change of models or within the organization. The new plant will give Commerce 60,000 sq. ft. of manufacturing space, he said, which will be ample for all present requirements. The company is doing well, he declared, and he looks forward to good business through the fall months.

The purchase of the plant, which most recently had been occupied by Saxon, was through the Ypsilanti Savings Bank, which had taken over the buildings following the bankruptcy of Saxon. The Ypsilanti Board of Commerce will give Commerce a bonus for locating its factories there.

Jobbers' Practices Disturb Producers

Past Due Accounts, Discounts
and Trade Acceptances
Discussed in Chicago

CHICAGO, Sept. 22—A comprehensive discussion of terms of payment and cash discounts by members of the Automotive Manufacturers' Association at its regular meeting resulted in a definite statement of stricter terms to be enforced by several members and announcement that the association will send questionnaires to all members to determine how and with what success they deal with such problems as overdue accounts, arbitrarily deducted discounts and trade acceptances.

Laxity in Methods Reported

Practically all members agreed that a serious financial problem has been forced upon them in the last four to six months by an increasing tendency on the part of their customers—jobbers—to be lax in the observance of customary or special rules as to cash discounts and terms. For instance:

Remittances are sent in days and even weeks after the discount date with the discount deducted.

Trade acceptances are offered after expiration of discount period with expectation that discount will be allowed.

No attention is paid in many cases to letters asking for remittances to cover shortages due to improper deduction of discount.

Extension of special terms results in many cases in abuse and request for still further extension.

These practices, it was pointed out, often make it necessary for manufacturers to borrow heavily from their bankers to finance business that should be taken care of with remittances normally coming in.

Company Adopts Policy

Announcement was made of a new and rigid policy formulated by H. S. Pardee, treasurer of the General Automotive Corp. The principal features of this policy were read by Noah Van Cleef, president of the association. The rules governing terms of payment and discounts are as follows:

1. Regular terms are 30 days net, but any buyer who wishes to pay all of the preceding month's bills on the 10th proximo, net, may be permitted to do so if he signifies his intention to do so regularly.
2. All invoices will be dated as of the day of shipment and no requests for post dating will be accepted.
3. A special discount of 2 per cent for cash is offered on invoices paid on or before the tenth day following date of invoice.
4. Orders specifying cash discount 10th proximo will not be accepted without customer's authorization to ship on the last day of the month.
5. Six per cent interest from date due will be charged on accounts more than 30 days overdue, which must be covered by a promissory note.
6. Trade acceptances will be accepted un-

Industry Should Seek to Prevent Car Accumulation That May Come from Large Schedules

AN INTERVIEW WITH J. G. BAYERLINE,
President of the Columbia Motor Car Co.

By D. M. McDonald,
Detroit News Representative of the Class Journal Co.

Detroit, Sept. 26.

NEEED for organization on the part of the industry in bringing out new models has been emphasized more this year than ever before, declares J. G. Bayerline, president of the Columbia Motor Car Co. By the scattering of announcements of new models over a period of months, he said, a season that might well have been a good buying period was turned into a poor one for everybody, some result of which is still being experienced.

While recognizing the difficulty of getting a large number of competing manufacturers to act in harmony in bringing out new models he said all must recognize that if some sort of concerted action could be arranged it would be better for everyone. Under the present system there results practically a period of stagnation in which dealers and car buyers stay out of the market until they feel assured they will not be caught with models which may be discontinued over night.

Not only dealers but some factories were caught with manufactured stocks of the old models, he declared, and almost anyone could buy these at the factory at prices far below the list. Selling cars this way by the factory hurt the market more than anything else, said Mr. Bayerline, and was inexcusable on the part of so-called strong companies. New car announcements might better have been delayed and the dealer organizations been granted the opportunity to profit by extra discounts or allowances on the former types, at the same time maintaining list prices.

Mr. Bayerline expressed some concern over the reputed large schedules proclaimed for the coming year, but only over the ability of the companies to market them through orthodox channels. The worst thing that can happen to the industry, he said, is to suffer an accumulation of cars, bringing in its train the necessity of unloading them at any cost. The industry went through this in 1920 and should be wise enough to avoid it again, he declared.

There is plenty of good business in sight, he said, and any pessimism about the continuance of a good sound market for cars is not warranted by the general condition of the country. If, however, there is to be the deluge of cars that is promised in the reports of contemplated schedules, the industry has cause for worry. If they can all be sold legitimately it will be a fine thing for the industry, but on the face of things it looks like an ambitious undertaking.

The safety of the small manufacturer lies in manufacturing in reasonable quantities a car that is sufficiently different from the heavy production models to make a sound market for itself and offer dealers an attractive basis on which to sell it, Mr. Bayerline said. Too little attention has been given dealer welfare in the industry generally and as a result there is a great deal of insecurity in this field which must be remedied.

Mr. Bayerline saw a need to resell the value of automobile paper to the banks of the country so that dealers might get the credit to which they are entitled without having to pay excessive rates. Much good work could be done by the industry generally in helping the dealers with their financial problems, Mr. Bayerline said, adding that the development of the financing companies has not removed the responsibility of the manufacturer.

der the following conditions, only:

- (a) From firms of high credit.
 - (b) Not longer than 90 days from date of invoice.
 - (c) When arranged for at time of, or immediately after, sale.
 - (d) Never to cover collection of overdue accounts.
 - (e) With interest at 6 per cent from 30 days after date of invoice, to be added on face amount of note.
 - (f) Without allowance of cash discount.
 - (g) Without privilege of renewal.
7. Buyer must waive all clauses printed or written on purchase orders which conflict with uniform quotations and terms.
8. All shipments are made F.O.B. factory.

The new plan of the General Automotive Corp. was made effective Aug. 1 and therefore had the benefit of only one full month's trial in advance of the meeting. The results of this trial were told by Pardee. He said that only about 10 per cent of the company's customers

had objected to the policy. To all invoices mailed after Aug. 1 a tag was attached calling attention to the new terms. Some buyers filed their objections in writing but conformed to the policy; others ignored the notice and on or after Sept. 10 remitted with discount deducted from the previous month's bills.

About twelve such remittances were received, Pardee said, and the company immediately took up the matter of collecting the shortages. It had been successful in most of the cases up to that time, he said. His company, he declared, would prefer to do a smaller business, if necessary, on these terms rather than go back to loose and lax methods. It was his opinion, however, that adherence to these terms would not cost the company a single worth-while customer.

(Continued on page 664)

Stevens-Duryea Sale Stopped Third Time

Stockholders Ask for Adjournment—Owen Syndicate May Withdraw \$450,000 Offer

SPRINGFIELD, MASS., Sept. 25—Owing to an intervening petition of stockholders in Stevens-Duryea, Inc., the hearing on the receivers' petition for permission to sell the plant for \$450,000 to a group headed by R. M. Owen was continued for the third time in Superior Court Sept. 22.

This action was taken when C. P. O'Connor, attorney of Philadelphia, had promised immediate action by a stockholders' protective committee for reorganization of the company and continuance of manufacture. He promised to submit a report on this plan in a week, and a continuance was granted until Sept. 29, in Northampton, Mass.

In opposing the sale, the attorney said that the receivers were not appointed with a view to liquidating the business and that due notice had not been given of the purpose to sell the property. He also pointed out that Stevens-Duryea is incorporated under the laws of Delaware and the Massachusetts court did not possess full jurisdiction in the matter.

The Union Bond & Mortgage Co. of Philadelphia was named as concerned in the movement to reorganize the stockholders.

Attorneys for the receivers expressed doubt of the possibility of effecting the reorganization, with some 22,000 stockholders with an average investment of \$300 each. It was stated the stock was widely distributed among working people of Chicago. O'Connor said that he thought the reorganization plans could be fully perfected within six weeks.

On behalf of Owen it was stated that his offer would be withdrawn on expiration of the time limit, which had been extended to Sept. 24 to meet the requirements of the continuance made a week before. According to an attorney for the receiver the plant of late has been operated at a loss of \$4,000 a week.

Glancy Corporation Gets G. M. Malleable Holdings

WAUKESHA, WIS., Sept. 24—The Glancy Malleable Corp., recently incorporated, has taken over extensive leased holdings of General Motors at Waukesha and Janesville, Wis., and will continue to handle large contracts for malleable parts for various divisions of the corporation. In Waukesha the plant concerned is that of the Waukesha Malleable Iron Co., taken over by the Samson Tractor Co., in 1918 as a source of supply for the large works built at Janesville.

A. R. Glancy was given charge of the Samson works as general manager in 1920 and when the Samson business was

liquidated and the Chevrolet took over the Janesville works, he was placed in charge of the Waukesha foundry and the remaining Samson interests in Janesville. Since Jan. 1 he has operated the foundry under lease, manufacturing malleable castings for the Buick and Chevrolet companies.

A part of the Samson plant in Janesville has been equipped as a machine shop to finish such castings. Considerable additional space has now been leased at Janesville and much new equipment has been ordered.

Glancy will make his headquarters in Janesville. He is president and general manager of the new company. E. F. Carson is treasurer; L. A. Williams, vice-president, and L. O. Harkrider, all of Waukesha, secretary. The general offices of the company are maintained in connection with the Waukesha foundry.

C. B. Shepard Organizes New Hardware Company

DETROIT, Sept. 24—The C. B. Shepard Co. has been formed in this city by C. B. Shepard to engage in the manufacture of automobile hardware.

Shepard formerly was the owner of the Shepard Art Metal Co., which later became a subsidiary of Fisher Body Corp., and recently was made a division of the Ternstedt Manufacturing Co. At the time of the latter change Shepard's resignation was announced, it being understood at that time that he contemplated formation of the new company.

The C. B. Shepard Co. has taken over the former Armstrong Tanning Co. plant in the southeastern part of the city. The company will employ 500 men and it was reported to have a large number of orders booked.

Builder of Motorcycles Again in Receivership

PHILADELPHIA, Sept. 22—For the second time in three years the Ace Motor Corp. has been placed in the hands of receivers. C. Webster Plass and Willard P. Barrows today were appointed temporary receivers by Judge McKeehan in the United States District Court. Bond was fixed at \$50,000.

Lack of working capital to produce the motorcycles the company manufactures was the cause assigned for the embarrassment in September, 1920, the same cause being given today in the bill in equity filed by Henry D. Wieand, a stockholder and creditor. The bill states that the assets are \$1,300,000 and the liabilities are \$1,141,666.

Merchandise claims of between \$150,000 and \$200,000 are now due, and next month two mortgages, aggregating \$316,000, will mature.

MAXWELL-CHALMERS SALES

DETROIT, Sept. 24—Maxwell-Chalmers sales in the first 15 days of September indicate that the month will surpass the record business of 8978 set up in April of this year.

Mitchell Hope Goes as Sales Commences

**Bulk of Plant Machinery Sold in
Parcels—Factory and Realty Bid Pending**

RACINE, WIS., Sept. 24—All hope of rehabilitating the Mitchell Motors Co. into a going concern and continuing the production of the Mitchell car has passed. At a private sale begun Sept. 15 the bulk of the machine tool, machinery and other equipment, the materials, finished and unfinished parts and units, merchandise, etc., was disposed of in lots or parcels and the plant is now being dismantled.

The sale was suspended on Sept. 19, when interests said to represent Paterson of Flint, Mich., made an offer said to be \$750,000 for the real estate and buildings. Previously an offer of \$600,000 for the bare plant was rejected by Trustee Herbert F. Johnson. The new and higher offer was taken under consideration, and pending a decision the sale was discontinued.

A minimum bid of \$1,500,000 for the complete plant in bulk had been fixed by the referee and trustee prior to the beginning of private sale. While a number of interests were disposed to make bids, none was received that was definite and adequately backed. The trustee then began private sale in parcels, and if the \$750,000 offer for realty and plant is accepted the proceeds of the sale will be well in excess of \$1,500,000, for the parcel sales aggregate more than \$750,000.

Brisk bidding is still under way for the supply of spare parts and right to service Mitchell cars. It is stated that an offer of \$100,000 was rejected.

Kelly Tires Sells Wooster Plant to Thomas Rubber

NEW YORK, Sept. 24—Kelly-Springfield Tire Co. has sold its Wooster, Ohio, plant to the Thomas Rubber Co. of Millersburg, Ohio, for \$100,000. The Thomas company will reopen it Oct. 1 for the manufacture of tires. The plant has a capacity of about 500 tires a day.

No use has been made of the plant for nearly two years, the Kelly-Springfield company having closed it and the plant at Buffalo. The latter was sold to a burlap bag concern and the Kelly-Springfield company since then has centered its manufacturing activities in its plant at Cumberland, which has a capacity of 10,000 tires a day. It also has its Akron plant, with a capacity of 1500 tires daily, which is not in operation at present but which is available when needed.

The Thomas Rubber Co. personnel is made up of the following officials: William S. Thomas, president; George G. Thomas, vice-president; Thomas Richards, treasurer; William S. Thomas, general manager, and G. B. Thomas, sales manager.

Hausmann Is Head of Templar Motors

Company Is Reorganized With
\$2,500,000 Capital Stock—
Entirely New Personnel

CLEVELAND, Sept. 24—Succeeding the Templar Motors Co., which became involved in financial difficulties a year ago, the Templar Motor Car Co. has been formed with a paid-in capital stock of \$2,500,000, preferred 7 per cent cumulative and in addition 100,000 shares of no-par common.

The personnel of the company is entirely new, none of the officials of the old Templar Motors Co. being identified with the recently organized Templar Motor Car Co. T. L. Hausmann, long connected with the automobile industry, is president of the company.

Plans have been made to get into full production on all models during October. The company also will exhibit at the New York show.

Plans call for the addition of a six-cylinder line which will use four-wheel brakes, while the former four-cylinder models will be continued.

Philadelphia Selected for Overland Assembly

PHILADELPHIA, Sept. 26—Willys-Overland Co. has leased the fourteen acre factory of the George W. Smith Co., Inc., in this city, for an assembly plant, with a capacity of 200 cars daily. Operations will start Jan. 1.

The plant will be used as the base of supply for the company's Eastern district and its establishment is expected to result in a considerable saving in manufacturing cost. It is situated on the Reading, the Pennsylvania and Baltimore & Ohio railroads and has considerable space adjoining for expansion. It was constructed during the war as a wood-working establishment. The George W. Smith company is building a plant for its own use.

One factor in the selection of Philadelphia as the Eastern assembly plant is that the Budd Manufacturing Co., supplying Willys-Overland with steel bodies, is located here.

Ford Considers Locating Assembly Product in Chile

DETROIT, Sept. 20—Location of a Ford assembly branch along the west coast of South America, probably Chile, is regarded as a likelihood within the near future if conditions continue to improve. A report will be submitted to factory executives next month which will embody the general situation in this territory and upon this will depend the company's decision as to locating a plant.

There has been improvement in business in all western countries of South

America, the company declares, after a long period of recovery from conditions following the war. The dealer situation and the general business condition of this section has been the subject of recent personal investigation.

No definite steps have been taken by the Ford company with regard to the location of the proposed Mexican plant. Business in Mexico is reported slow in recovering from the effect of the changes in the country's financial structure. The Houston and Los Angeles branches continue to meet all Mexican requirements.

Ford Completing Chicago Plant

CHICAGO, Sept. 22—The Ford Motor Co. expects its new assembling and manufacturing plant being erected in the industrial district south of Chicago to be ready for occupancy by Jan. 1.

The company has advertised for sale its plant at Thirty-ninth Street and Wabash Avenue, now the center of its Chicago activities. This plant has been assembling about 300 cars daily and has more than 400 dealers operating under its control.

The capacity of the new plant when all units are completed will be several times that of the present plant.

Michigan Cannot Stop Paralleling Bus Lines

DETROIT, Sept. 22—Michigan Public Utilities Commission has handed down a decision to the effect that it has no power to refuse to permit motor bus operation paralleling interurban and railroad lines, even though the latter are furnishing all the service needed. Protest had been filed by rail lines against all bus lines following the passage by the 1923 Legislature of a law giving the commission power to regulate buses.

A test case was made on the protest of the Grand Trunk System and the Rapid Railway against the Wolverine Transit Co., operating six buses to Mount Clemens from Detroit. The decision reads:

"The commission is of the opinion that Act No. 209 limits the inquiry of this commission in determining whether a public convenience and necessity exists in the motor vehicle business."

It was explained that if the commission did have the authority to inquire into the related activities of the various carriers, it would have to find that the buses are unnecessary between Detroit and Mt. Clemens.

The railroads are expected to appeal.

Amco Plant Destroyed with Loss of \$200,000

INDIANAPOLIS, Sept. 24—Fire Saturday destroyed the assembly and storage plants of the Amco Manufacturing Co., with a loss estimated in excess of \$200,000, largely covered by insurance.

Forty thousand Amco radiator shutters and 2000 sets of Amco rebound checks were destroyed. Production is to continue in temporary quarters. Negotiations for a new plant are under way.

Columbia Preparing Policy for Liberty

Price Range of Two Cars Will Ex-
tend from Under Thousand
Mark to \$2,000

DETROIT, Sept. 21—Columbia Motor Co. will locate its general offices in the Liberty plant this week and will signal its taking over the property by holding a distributor convention at which plans for the coming year will be discussed. Manufacture of the Columbia will continue at the present plant until the lease expires, the company in the meantime getting the Liberty plant ready for manufacturing both the Columbia and Liberty models.

Plans of the company on its manufacturing policy are not ready for announcement, but it is declared the price range on the two models will extend from slightly under the thousand mark for open cars in the less expensive models to approximately \$2,000 in the closed cars of the higher priced line, thus giving its dealers a complete line in the medium-priced field. Both lines will be sixes, as formerly, and will retain characteristics that have become recognized.

Plan for Handling Cars

Dealers formerly handling the Liberty line will be given the opportunity to sell both lines at all points where there is not conflict with the regular Columbia dealers. In all such cases the Columbia dealer will have precedence. In taking over Liberty, President J. B. Bayerline said there were found dealer credits which, in most instances, had counter claims against them for service parts shipped. These will be adjusted and the amounts to which dealers are entitled will be credited on new cars shipped.

The company plans to communicate with all owners of Liberty cars and will furnish free any service parts which may be required, the owner, however, bearing the cost of the repair work. This is being done to insure the good will of the present Liberty owners, and also to manifest the strength of the Columbia company.

Mid-West Manufacturing Takes Name of Wood-Imes

MINNEAPOLIS, Sept. 24—Changing its name from the Mid-West Manufacturing Co. to the Wood-Imes Manufacturing Co. because of a confusion of nomenclature, the concern which manufactures Dolly jacks and burnishing compounds, also has decided to drop the trade name "Red Devil" because of its having been used by another manufacturer.

Hereafter the company's products will bear the name of Wood-Imes. There will be no change in the company's personnel, Sheldon V. Wood continuing as president and Carl E. Imes as secretary and treasurer.

Ford Also Changing Its Canadian Model

Sedan and Coupe of New Type
Will Be Priced at \$985 and
\$755, Respectively

DETROIT, Sept. 20—Ford Motor Co. of Canada, Ltd., is announcing that after Jan. 1 its production will be changed over to models similar to those now being built in the United States and that it will discontinue its present type coupé and sedan. For the balance of the year it is offering these at present prices of \$685 for the sedan and \$595 for the coupé, declaring that the new types will be priced at \$985 and \$755 respectively.

In making the announcement on its manufacturing policy, the company declares that it is doing so to settle all rumors that have been circulated regarding Ford cars and prices in Canada.

The weekly payment plan instituted by the Ford Motor Co. in the United States this year is now being put into effect throughout Canada by the Canadian division of the company. Large advertisements of the plan are appearing in Canadian papers. There is no change in the operation of the plan as between the two countries.

As a stimulus to trade in Canada the company is sending out a motor caravan exhibiting the different Ford cars and products. This will visit the county fairs being held during the present season.

Anderson Will Produce New Coupe in October

ROCK HILL, S. C., Sept. 25—Production will be started about Oct. 1 on the new Anderson two-passenger coupé which will list at \$1,425.

The finish of the model is in cobalt blue with striping, black fenders and running gear, trimming in Spanish dual tone leather and headlining in Chase Millias cloth. The equipment compares with ordinary sport model outfitting. A large compartment is provided in the rear for luggage.

Marmon Reduces Prices; Lists Phaeton at \$2,785

INDIANAPOLIS, Sept. 22—Price reductions ranging from \$400 to \$450, effective Sept. 24, have been made on the complete line of Marmon cars. The new schedule fixes the price of the seven-passenger phaeton at \$2,785, a reduction of \$400. The revised price list is as follows:

	Old Price	New Price
7-passenger phaeton.....	\$3,185	\$2,785
4-passenger phaeton.....	3,185	2,785
2-passenger sport speedster	3,385	2,985
4-passenger sport speedster	3,485	2,985
4-passenger coupe.....	3,985	3,585
7-passenger sedan.....	4,385	3,985
4-passenger sedan.....	4,385	3,985
7-passenger suburban.....	4,685	4,285

DETROIT WOULD FINE ALL JAY-WALKERS \$5

DETROIT, Sept. 22—The proposed jay-walking ordinance to be submitted for a referendum vote in this city Nov. 6 has been forwarded to the police department for approval. The following are its provisions:

Pedestrians are to cross roadways only at street intersections, or other crosswalks which may be designated as such by action of the council.

At intersections where a traffic officer is stationed, pedestrians are to cross only when the officer signals for a movement of traffic in the direction they are going.

Pedestrians must look in both directions before leaving the sidewalk to enter the roadway.

Playing, hitching rides, coasting, roller skating, running and soliciting rides in the roadway are prohibited.

The penalties for violating these provisions are a fine of not more than \$5, two days' imprisonment or both.

Limousine	\$4,685	\$4,285
Town car.....	4,685	4,285
Chassis without cowl or dash, but with instrument board and instruments and with front and rear fenders, hood, starting and lighting system, lamps and standard chassis equipment, tools, etc.	2,700	2,300

Front wheel brakes are now being furnished as optional equipment on new Marmon cars, when ordered at time of shipment from factory, at \$125.

Hupp Open Car List Cut; Closed Remains Unchanged

DETROIT, Sept. 24—Reductions of \$40 on the standard phaeton and roadster and \$90 on the sport phaeton and roadster are announced by the Hupp Motor Car Corp. The new price on the five-passenger standard phaeton is \$1,175.

Regular equipment on the open models includes wood wheels, disk wheels being optional at \$30 above list. No price change has been made on any of the closed models.

The following schedule shows the current prices:

	Old Price	New Price
3-pass. standard roadster	\$1,215	\$1,175
5-pass. standard phaeton.	1,215	1,175
3-pass. sport roadster....	1,315	1,225
5-pass. sport phaeton....	1,315	1,225

Goodrich Lists Balloon Tires and Quotes Prices

AKRON, Sept. 24—The B. F. Goodrich Co. has officially listed balloon tires and quotes the following consumers' prices: 28x4, \$25.35; 30x5, \$30.70; 32x6, \$42.85; 34x7, \$68.55.

New Jewett Featured by All Enamel Finish

Five-Passenger Brougham Model
Is Listed at \$1,325—Wood
Body Frame Used

DETROIT, Sept. 25—A five-passenger brougham, selling at \$1,325, is the latest addition to the line of the Jewett Motor Co. The outstanding feature of the new car is the all-baked enamel finish. Every portion of the metal work of the body is completely enameled on both sides. Contrary to the usual practice, a wood body frame is used.

The combination of baked enamel finish and wood frame is obtained by a new process of assembling individually finished steel sections and panels with the regular wood frame. An excellent appearance is maintained by a system of bolted-on steel beading which thoroughly conceals every joint in the construction.

Equipment includes a metal visor, cowl ventilator, windshield cleaner and trunk. Entrance is made at two 30-in. doors, one at each side. The front seats are of the individual hinged bucket construction. The rear seat is full width and easily accommodates three passengers. Both of the front seats are hinged so that two positions fore and aft are available.

Could Seat Four Passengers

The right seat may be swung forward into the space under the instrument board, making a four-passenger coupé arrangement for ordinary purposes. Windows in the doors are controlled by crank regulators while the rear quarter windows are lifted by straps and held in position by a spring pressure lock.

This model is mounted on the regular Jewett chassis with the standard full length running board and full crown fenders. The all-enamel finish insures continued good appearance and soft leather fabric top rounds out the lines of the car. As the body is assembled from finished sectional steel units, repair or replacement of any damaged portion is easily accomplished.

Aeromarine Brings Out New Commercial Plane

KEYPORT, N. J., Sept. 24—The Aeromarine Plane & Motor Co. has brought out a new commercial flying plane with a metal hull, which carries thirteen, including pilot and mechanic. It weighs 6000 lb., has a speed of more than 104 m.p.h., and can climb to a height of 14,000 feet, it is claimed.

It is of the biplane type, the wings measuring 65 feet from tip to tip. The length of the hull is 35 feet 9 inches and the hull is only one-sixteenth of an inch thick on the bottom and 4/100 inch thick on the sides. The height is 13 feet 6 inches. It is powered by one Liberty engine with a two-bladed propeller.

Men of the Industry and What They Are Doing

Schwab is Stutz Director

Charles M. Schwab has been elected a director of the Stutz Motor Car Co. of America to succeed A. F. Cassidy, resigned.

Henry L. Horning Sails

Henry L. Horning, general manager of the Waukesha Motor Co., Waukesha, Wis., sailed on the Majestic Saturday to attend the Paris automobile salon, and to study engineering affairs in England. He was accompanied by A. H. Boettcher, patent attorney of Chicago.

Field is Kissel Advertising Head

Elliott B. Field, formerly of Detroit, has been chosen advertising and publicity manager of the Kissel Motor Car Co. He long has been identified with advertising work in Detroit, and previously was connected with the advertising and sales departments of the Burroughs Adding Machine Co.

Salzman Joins Monmouth Machine

G. S. Salzman, formerly treasurer and factory manager of the Grant Motor Corp. and during the last two years engaged in research engineering, now is vice-president and general manager of the Monmouth Machine Co. of Cleveland, manufacturer of hardened and ground parts.

McCosker Assists Moon President

David McCosker has been appointed assistant to the president of the Moon Motor Car Co., Stewart McDonald, and will devote his time to special merchandising plans. He formerly was affiliated with the Haynes Automobile Co.

Ritchie Yellow Cab Director

John A. Ritchie, president of the Chicago Motor Coach Co., has been elected a director of the Yellow Cab Manufacturing Co.

Cliff Joins Allis-Chalmers

Howard J. Cliff, formerly of the Hart-Parr Co., Charles City, Iowa, has joined the Allis-Chalmers Manufacturing Co., Milwaukee, as manager of the service department of the tractor division. He is in complete charge of service and repairs. In his former capacity Cliff was field service man, branch house repair department manager, and in charge of repair and service at the Charles City works, in succession.

Budlong Sells York Motors

Milton J. Budlong, head of York Motors Corp., handling the Ford and Lincoln, has sold his company to Fuller-Luce, Inc., one of the New York distributors of the Ford. He retains the

Newark branch of the York company but the new owners will take over the New York salesrooms at 217 West Fifty-seventh Street and also will open a new service station at 503 West Fifty-sixth Street, which will service Lincoln cars. Budlong has not announced his future plans.

Changes with Black & Decker

Changes in the personnel of the Black & Decker Manufacturing Co. have been announced. Robert D. Black, Philadelphia branch manager, will return to the factory preparatory to succeeding G. W. Brogan, who retires as advertising manager Jan. 1, to handle his own advertising agency. H. G. Smith will succeed Black in Philadelphia. E. D. Allmendinger, formerly in Detroit territory, will take charge of the company's export department, and Henry Fox will be sent to Detroit. M. A. Weidmayer, formerly working out of Detroit, joins the industrial department at the New York office. R. E. Mizener also will be in the industrial department at New York, having been transferred from the Ohio territory. T. C. Cornell succeeds Mizener in Cleveland.

Reynolds Export Head for Selden

Harry B. Reynolds, who has been export manager for the Denby Motor Truck Co. for several years, with offices in New York, will occupy the same position with the Selden Truck Corp. after this week. Reynolds will open an export office for the Selden company, which has not been active outside of this country for several years, at the New York branch, 238 West Nineteenth St. In 1919 and 1920 Reynolds made a trip around the world selling motor trucks that took him through Australasia, parts of the Far East and the Near East as well as Europe.

Hal Taylor Resigns

Hal Taylor has resigned as sales manager of the Farran-oid Co. of Akron, Ohio. His plans have not been announced.

70 National Stations for A. C. Speedometers

FLINT, MICH., Sept. 24—The seventy nationally located speedometer service stations which have been established by the United Motors Service, Inc., are designed specially to service A.C. speedometers, made by the A.C. Spark Plug Co. of this city.

The A.C. Speedometer is being used on many Ford cars and is regular equipment with such cars as Buick, Maxwell and Chalmers, and the United Motors Service felt called upon to install national servicing.

Jimmy Murphy Told of A. A. A.'s Action

Says "Sporting Spirit Appears to Be Dormant"—Supported
by Major Robertson

PARIS, Sept. 17 (by mail)—"The sporting spirit appears to be dormant," remarked Jimmy Murphy, when, on returning to this city today, he was informed that the contest board of the A. A. A. had deprived him of his championship points.

Murphy remarked that he came to Europe to take part in the leading international event outside the United States, promoted by and under the control of an international body comprising delegates from France, Italy, Belgium, Spain, England and America.

"In doing this," declared Murphy, "I missed only one American race, held on a track which had not been built when I left home. I am returning to America as soon as I can find accommodations on a steamer, and shall be ready to start in the Kansas City race. The two Miller racing cars have already been shipped back home."

Major George H. Robertson, winner of the Vanderbilt Cup in 1907, who acted as manager for Murphy both when he won the French Grand Prix and in the recent European Grand Prix, denounced the decision of the A. A. A. contest board as the "most unsportsmanlike action" he had ever seen.

Manager Defends Murphy

Major Robertson said:

Murphy came to Europe to uphold American prestige and did so in a most brilliant manner. There is no doubt that he has done more for the American industry abroad by winning the French Grand Prix and capturing third place in the European Grand Prix against the cream of foreign cars and drivers than any man living. Murphy was beaten by faster cars on the Monza track, but the 120,000 people who saw him perform and the greater number who read the account of this race in the papers were made to feel that America can rank with the best in the production of racing cars and drivers.

Every American automobile dealer in Europe feels grateful to Murphy for holding up American reputation in face of keen competition; instead of taking his points from him, the Contest Board ought to have given him points, and to have publicly thanked him for the work he has done. As an American I am ashamed for it to be known that an American organization has taken what it describes as "disciplinary measures" against an American driver competing in the most important foreign race of the year.

American race promoters always have welcomed European cars and drivers and there is no doubt that they would be as disgusted

(Continued on page 661)

Bureau of Standards Explosion Kills Four

Automotive Engineers Were Conducting Tests on Gasoline-Saving Apparatus

WASHINGTON, Sept. 22—An explosion in the Bureau of Standards' laboratory, while tests were being made on gasoline-saving apparatus claimed to save 500,000,000 gal. of gasoline yearly on automobile engines, yesterday took a toll of four lives and injured five.

The dead, all of whom were experienced automotive engineers, are:

Stephen M. Lee, in charge of the experimental work at the time of the explosion.

Dr. L. L. Lauer, assistant physicist.
James E. Kendig, automotive engineer.

W. J. Cook, machinist.

S. A. E. Members Among Injured

Lee was a member of the Society of Automotive Engineers and at the summer meeting of the Society at Spring Lake, N. J., read a paper on "Economic Fuel Volatility."

Roger Birdsall and F. E. Richardson, two of the injured, were members of the S. A. E. Birdsall was engaged in research work on behalf of the automotive industry, and Richardson represented the Army Air Service in the experimental work.

The Government statement following the accident says:

The explosion occurred in the altitude chamber which is used in testing the performance of aircraft engines under the conditions of low pressure and temperature obtaining at high altitudes.

At the time of the accident the room was being used in investigating the performance of an automobile engine at temperatures corresponding to winter operation, using various grades of gasoline.

The work was intended to determine the possible increase in gasoline production per barrel of crude oil, with the accompanying conservation of our national resources, by the use of gasoline of lower volatility.

N. A. C. C. Sponsored Test

The test which caused the explosion was being made by the bureau at the instance of the National Automobile Chamber of Commerce, the American Petroleum Institute and the Society of Automotive Engineers and conducted specifically to determine if a greater mileage could not be obtained from automobile engines with carburetor adjustments.

Experiments were made with various makes of engines to determine the volatility of motor fuel and to secure the greatest number of miles a gallon of gasoline. These tests were held in an airtight chamber.

At the time the explosion actually occurred a small engine of popular make was being given an accelerator test.

All of the testing instruments were

located outside the testing room, and it is thought that the room became fume-filled with gasoline vapors which ignited when the engine backfired through the intake, causing the explosion. A leak in the feed pipe is blamed for the room becoming filled with the gaseous vapor.

Following the explosion, Secretary of Commerce Hoover declared that those killed and injured were martyrs to science.

The monetary loss was placed at approximately \$10,000, caused by the destruction of the especially built testing chamber, which was a total wreck.

(Continued on page 665)

Production in August Reached 344,486 Total

WASHINGTON, Sept. 26—Production of passenger cars and motor trucks in August aggregated 344,486, according to figures compiled by the Department of Commerce, based on reports from 181 manufacturers, ninety-four of whom make automobiles, and 115 trucks. Among the latter are included twenty-eight producing both cars and trucks.

Figures for earlier months, it is announced, include production of ten additional manufacturers now out of business.

Production for all of 1921, 1922 and eight months of 1923 is as follows:

PASSENGER CARS			
	1921	1922	1923
January	43,086	81,693	*223,708
February	68,088	109,171	*254,651
March	130,263	152,959	*319,637
April	176,439	*197,222	*344,475
May	177,438	*232,433	*350,181
June	150,263	263,027	*337,144
July	*165,615	*225,079	*297,257
August	*167,755	*249,460	314,040
September	*144,670	187,661
October	*134,773	*217,493
November	*106,081	*215,284
December	*70,725	*207,932

MOTOR TRUCKS**			
	1921	1922	1923
January	4,831	9,517	*19,533
February	7,830	*13,290	*21,961
March	13,328	*19,919	*34,905
April	18,070	*22,486	*37,718
May	18,070	*23,948	*43,228
June	14,328	*26,171	*40,819
July	*11,132	*21,956	*30,359
August	*13,391	*24,601	*30,446
September	*13,975	*19,333
October	*13,144	*21,698
November	*10,480	*21,803
December	*8,589	*20,160

* Revised.

** Includes fire apparatus and street sweepers.

WESTERN DROP FORGE SALE

MARION, IND., Sept. 24—Philip Matter, receiver for the Western Drop Forge Co., involved financially because of the Dollings failure, advertises that the company's ground, factory and equipment will be sold Oct. 22. It is understood that efforts will be made to sell the plant intact. At the time of the appointment of the receiver the company employed 500 workmen.

S. A. E. Section Makes Membership Rulings

Action Taken by Metropolitan Members Provides for Admission of Associates

NEW YORK, Sept. 24—At the meeting of the Metropolitan Section of the Society of Automotive Engineers, held at the Automobile Club of America, two resolutions which had been prepared by the Governing Committee were introduced, discussed and favorably acted upon.

One of these resolutions would automatically make every S. A. E. member residing within thirty miles of the headquarters of one of the sections a member of that section, while the other would make persons who are interested in the work of the sections, but who are not eligible to membership in the S. A. E., eligible to section membership. The first resolution adopted by the section reads as follows:

Annual Dues Increased

Whereas, the main activities of the S. A. E. are being carried on by its sections, and the section officers are already burdened with all the detail they can reasonably be asked to carry, and whereas larger funds are necessary to properly carry on the section activities, and these should be raised among S. A. E. members, who directly or indirectly enjoy the results of the section activities, therefore be it

Resolved, that it is advisable to increase the annual dues of all but student members of the Society from \$15 to \$20; that the increase of \$5 include a section membership, and that this sum be credited to the section in which the individual resides or makes his business headquarters. Further, that the dues for an S. A. E. member residing and having his place of business more than 30 miles from the city in which the section has its headquarters, be \$15, unless such S. A. E. member desires to become a section member.

The other resolution, which relates to election to section membership of persons who either are not eligible to S. A. E. membership or could not reasonably be expected to join the S. A. E., and which was also adopted by the section, reads as follows:

New Associate Members

Whereas, it will be of advantage to the Metropolitan Section to take in section members to be known as associates, these men not being members of the Society but nevertheless men who may greatly profit by contact and association with the Metropolitan Section, and whose experience and discussion may correspondingly be of benefit to the Metropolitan Section, be it

Resolved, that it is advisable to have the active participation and financial support of the large number of men in this district who either are not eligible as regular S. A. E. members or who could not reasonably be expected to become S. A. E. members in order to join the section, and that the Council of the S. A. E. is hereby requested to authorize suitable associate membership at \$5 per annum.

Shipping Directions Crowd Parts Makers

Some Plants in Milwaukee Zone Report Capacity Bookings as Far Ahead as March 1

MILWAUKEE, Sept. 24—While as a rule at this time of the year automotive unit, parts and equipment shops in Milwaukee have always been comfortably filled with advance orders, this year the factories are crowding local makers of such material to the maximum of capacity with shipping directions.

Frequently supplies of parts and equipment are ordered rushed forward by fast express, the need being so urgent that freight delivery will not meet needs. Some shops are booked up to capacity as far ahead as March 1, while others generally have all the orders on their books that present production schedules can meet until Dec. 1.

Monthly summaries of business conditions issued by local banks indicate that the automotive industries continue to be largely responsible for the excellent state of employment locally, and are sustaining a steady gain in number of men at work in foundries, machine shops and similar shops.

Conditions in Milwaukee Field

There has been no sign of any hesitancy in the movement of passenger cars through retail channels in Milwaukee and generally throughout Wisconsin. Trade is far more active than it has ever been as September comes to a close. Sales for the month average much higher than in any September of record, and on a dollar and cents basis volume is in excess even of periods when prices of cars were anywhere from 50 to 100 per cent above the present level.

Ford and Chevrolet dealers are not able to make immediate delivery even of phaetons and roadster types, while deliveries of closed cars are still farther advanced. The same is true of Buick. Overland dealers are doing a record-breaking business as well. Activity, in fact, is spread over the entire range of price classifications. Further reductions announced by Hudson and Essex were somewhat startling to the average mind, but only for a brief moment.

These had the effect of stimulating Hudson and Essex retail business, but contrary to past experience, did not result in any hesitancy in buying of other cars in the hope that other makers would follow.

To express the present attitude of the public, it might be said that comment centers on the ability of manufacturer to give so much car for so little money. This is in contrast to the attitude of a year or even six months ago.

FOREIGN AGENTS' COMPLAINT

WASHINGTON, Sept. 24—Complaints have been made by the foreign distribu-

tors of American automotive products that they are not given any assurance that they will retain a representation even though sales remain satisfactory.

It is declared that the contracts with a 30-day cancellation privilege for the American exporter are not generally satisfactory to dealers abroad. Studies conducted by the Automotive Division of the Department of Commerce indicate that many advantages are derived from retention of distributors as long as their orders come in satisfactorily. It is said that constant changing of distributors is not economical in the long run.

90 Per Cent of French Imports Were American

WASHINGTON, Sept. 24—Analysis of import and export figures by the American Consul at Paris show the importance of France as a market for American cars. More than 90 per cent of the total imports of foreign-made automobiles were of American make during the first four months of 1923. The American car imports amounted to 4068; Italy was second with 295.

The total value of French motor vehicle imports for the first four months amounted to 18,953,000 francs, as compared with 5,323,000 francs in 1922. The importations of motor trucks were unimportant, the total being only eleven for the four months.

Exports of French automobiles during the first four months of 1923 totaled 7941 and of 1922 only 4017. The principal countries to which cars were exported were Great Britain, which took 2497 cars, followed by Belgium and Luxembourg, with 1591; Algeria with 827; Spain with 676 and Switzerland with 605.

The total value of automobile exports during the first four months increased in 1923 to 194,530,000 francs, as compared with 130,732,000 francs for the same period of 1922.

Car Producer in Prague Not to Declare Dividend

WASHINGTON, Sept. 24—Reports received from Government agents in Czecho-Slovakia show that the Laurin & Klement Automobile Works at Prague, which in reporting on its operations for the year 1922 showed a profit of 340,000 crowns as against 2,000,000 in the preceding year, voted to pass the dividend for the year. Ten per cent was declared in the preceding year.

The company is capitalized at 16,000,000 crowns, is one of the four local companies manufacturing automobiles, and has a present production estimated between 350 and 450 cars a year.

The directors' statement regarding the current outlook for the company indicated a considerably increased demand at present over the year 1922, but declared that the lower price for automobiles was making profitable competition very hard. The company is turning to the production of lighter, lower-priced models, for which the demand is good.

Tool Makers Exhibit Their New Products

New Haven Section of A. S. M. E. Holds Meeting in Connection with Showing

NEW HAVEN, CONN., Sept. 21—Few novelties were in evidence at the third annual machine tool exhibit which closed here today, but much interest was evinced in the various tools shown, especially in those which were in operation.

Meetings held under the auspices of the New Haven section of the American Society of Mechanical Engineers, in connection with the exhibit, were not well attended, but there was a fair-sized audience at the concluding session in which certain tools were demonstrated and described.

Some of the Newer Tools

Among the newer tools exhibited were the Pratt and Whitney automatic centering machine and 16-in. lathe designed for individual motor drive, Henry and Wright dieing machines, Keller automatic die sinking machine, Leland and Gifford high speed drills, High Speed riveting hammers, Triplex combination lathe, drill and milling machine and Campbell nibbling machine.

Other prominent machine tool exhibitors included: Bullard Machine Co., Browne & Sharpe Mfg. Co., Gavin Machine Co., Hendey Machine Co., Jones & Lamson Machine Co., National Acme Co., Potter & Johnson Machine Co., Reed-Prentice Co., Sipp Machine Co., Van Norman Machine Tool Co., and Warner & Swasey Co. Numerous bearing and equipment concerns were also represented.

At the concluding A. S. M. E. meeting E. P. Blanchard, of the Bullard Co., described the construction and operation of the Bullard Multi-automatic built-in four and six-spindle units at each of which either the same or various successive operations are performed. This is a form of vertical turret lathe. It is used in production of Fordson tractor engine flywheels at a rate said to average 1¼ min. each. Bevel ring gear blanks are said to be turned out in about 68 sec. each and brake shoes in about 62 sec.

"Sub-Headstock" Demonstrated

A representative of the Hendey Machine Co. demonstrated what is termed a "sub-headstock" used to gear down work while still maintaining high speed tool feed. This enables production of smooth threads of very coarse pitch. A sample of a six start 4 in. lead screw and a piece with 54 in. pitch helical flutes cut in a Hendey lathe were shown.

H. A. Moore of the High Speed Hammer Co. gave an instructive talk on riveting during which he demonstrated the hammer built by his concern.

A Triplex combined lathe, milling machine and drill press was also exhibited.

August Car Exports Reached Total of 8411

Trucks Aggregated 1646, Shipments Showing Effect of Foreign Sales Season

WASHINGTON, D. C., Sept. 25—Exports of passenger cars from the United States during August totaled 8411, valued at \$5,954,815. The trucks shipped abroad totaled 1646, with a valuation of \$1,120,005, with accessories and parts reaching a total of \$4,331,902. These statistics were made public today by the Automotive Division of the Bureau of Foreign and Domestic Commerce.

The reduced totals in comparison with the preceding months are due, it is believed, to the seasonal slump occasioned by the ending of the sales period in the northern half of the world. The active sales season south of the equator

will not show up in the actual export shipments until September or October.

Canadian Figures

OTTAWA, ONT., Sept. 24—The August trade returns, giving exports of automobiles and parts at \$2,539,350 for the month, show that in proportion to her population Canada is exporting far more automobiles than any other country in the world. The latest United States figures available here, those for the year ending June, show that during that period the United States exported 101,000 cars, while for the year ending August Canada exported 61,543.

How rapidly the Canadian automotive industry is growing may be seen in the fact that in point of total value these figures represent an increase of 50 per cent over those for the same month last year. In the number of cars exported the increase has been about 100 per cent.

As compared with the figures for the year ending August, 1922, these exports have doubled in value during the last year, having gone from \$16,293,488 to

\$34,621,397. In the matter of the number of cars shipped out the increase has been even greater. During the year ending August, 1922, the cars exported totaled 26,549; in the year ending August, 1923, the number was 61,543.

The progress made by the Canadian automotive industry during the last decade is best realized by the statement that at the rate of export maintained during August Canada ships in six weeks to other countries as many automobiles and parts as she shipped during the whole year ending March, 1914. In that year the number of automobiles exported was 6306, valued at \$3,307,719. In the year ending August, 1923, the number of automobiles was 61,543 and the value \$34,621,397.

The British Empire is Canada's greatest market for these exports. The number of cars sold to all countries during August was 5613, as against 2849 for the same month last year.

The United Kingdom took 563 cars and parts valued at \$32,408. Australia was the best buyer of cars.

Exports, Imports and Reimports of the Automotive Industry for August of Current Year and Totals Reported for the Eight Months Ending August 31

	EXPORTS							
	Month of August				Eight Months Ending Aug. 31			
	No.	Value	No.	Value	No.	Value	No.	Value
Automobiles, including chassis.....	7,090	\$5,137,894	10,065	\$7,101,654	49,440	\$38,186,905	101,654	\$68,461,082
Electric trucks and passenger cars.....	4	7,456	8	26,835	189	276,785	156	230,448
Motor trucks and busses, except electric:								
Up to 1 ton.....	827	339,973	1,063	452,626	4,698	1,903,007	12,890	4,533,948
Over 1 and up to 2 1/2 tons.....	369	335,235	528	514,781	1,576	2,025,524	2,864	3,349,709
Over 2 1/2 tons.....	66	168,931	55	152,598	511	1,321,350	575	1,349,520
Total motor trucks and busses, except electric.....	1,262	844,139	1,646	1,120,005	6,785	5,249,881	16,329	9,233,177
PASSENGER CARS								
Passenger cars, except electric:								
Value up to \$500 (inclusive).....			3,750	1,369,569			38,309	13,583,301
Value over \$500 and up to \$800.....	3,931	1,902,395	1,684	1,096,132	27,134	13,057,499	18,145	12,112,180
Value over \$800 and up to \$2,000.....	1,707	1,849,226	2,775	2,941,794	13,961	15,461,994	26,850	28,189,538
Value over \$2,000.....	186	534,678	202	547,319	1,371	4,140,746	1,865	5,112,438
Total passenger cars, except electric.....	5,824	4,286,299	8,411	5,954,814	42,466	32,660,239	85,169	58,997,457
Parts, except engines and tires.....	11,866,216	2,678,953			104,865,384	25,183,508		
Automobile unit assemblies.....			355,443	96,592			21,731,255	3,437,682
Accessories, parts off.....			19,326,344	4,331,902			155,928,949	35,588,776
Automobile service appliances (not elsewhere specified).....			275,263	138,723			1,080,612	569,784
Station and warehouse motor trucks.....	12	10,766	18	12,408	116	118,872	126	65,036
Trailers.....	8	4,815	80	20,371	301	139,553	867	303,658
Airplanes.....			3	7,200	32	58,130	39	268,451
Parts of airplanes, except engines and tires.....	1,758	3,238	46,430	11,223	130,796	5,924	139,529	34,500
BICYCLES, ETC.								
Bicycles and tricycles.....	515	8,753	2,428	25,177	6,070	85,784	18,647	147,011
Motor cycles.....	1,011	241,676	1,761	428,577	10,444	2,747,049	15,385	3,624,141
Parts, except tires.....	231,068	119,496	224,728	120,203	2,112,539	1,134,815	2,293,419	1,157,180
INTERNAL COMBUSTION ENGINES								
Stationary and Portable Engines:								
Diesel and semi-Diesel.....	67	25,930	30	19,811	134	92,095	795	336,511
Other stationary and portable.....	2,370	368,462			16,280	2,141,725		
Not over 8 hp.....			2,312	190,569			19,734	1,854,973
Over 8 hp.....			129	107,026			1,737	868,143
Automobile engines.....	2,352	237,013			36,327	4,010,099		
For motor trucks and busses.....			235	21,946			2,931	330,340
For passenger cars.....			1,940	258,916			29,008	3,516,540
Engines for tractors.....			436	117,924			1,430	336,462
Engines for aircraft.....	5	8,200	6	4,205	98	62,719	30	27,257
Engine accessories and parts for.....	713,219	222,701	686,207	309,546	4,570,406	1,759,707	5,037,121	2,229,765
IMPORTS								
Automobiles and chassis, duty.....	33	62,944	59	47,116	243	470,156	447	583,785
REIMPORTS								
Automobiles and chassis, duty.....								181,280
Automobiles and chassis, free.....	120	199,662	45	52,836	1,032	1,756,691	2,081	2,317,112

* Pounds.

Better Road Grades as Traffic Solution

National Motorists' Association
Feels Physical Hazards Are
Biggest Detriment

CLEVELAND, Sept. 24—The solution of the traffic problem caused by ever-increasing numbers of automobiles lies in removing physical hazards from roadways and then speeding up traffic.

That was the keynote sounded by speakers who participated in a two-day conference of executives and officers of member clubs of the National Motorists' Association, held in this city to discuss the traffic problem.

M. E. Noblet, Indianapolis, and J. Maxwell Smith, Philadelphia, said that reliance on safety appliances and signs was being overdone, and that the best safety work lay in eliminating hazards of traffic, such as crossings, bad grades and sharp curves.

Opposes More Traffic Rules

Herbert Buckman, manager of the Cleveland Automobile Manufacturers' and Dealers' Association, speaking on the same subject added that more traffic rules mean more congestion through increasing the difficulty of driving. The automobile is twice as safe today as it was in 1914, he said, according to statistics of fatalities per 1000 automobiles.

Other speakers accentuated the importance of meeting the traffic problem and staying with it until it is solved by citing the number of motor vehicles now in use, and what may be expected. It was argued that the "saturation" point, which was a subject of speculation two years ago, has been forgotten or has been eliminated.

Not long ago the "saturation" point was placed at 12,000,000 to 14,000,000 cars, while today that number has been passed, with prospects for another good year ahead. With such a prospect for the growth of the number of cars in operation, speakers asserted, one of the most important things before manufacturers and clubs is to educate the public to get behind projects that are launched to speed up traffic and to get away from the idea that signs and signals are the solution for traffic problems.

Speaks on Gasoline Price

Gov. A. V. Donahey of Ohio addressed the conference on the gasoline question and stated that in his judgment the price should be such as to allow a fair profit. Ohio, he declared, should have lower gasoline prices, provided those prices do not require its production at a loss.

This, he argued, should be the policy of automobile clubs, for if they forced prices to below production cost it would only be a short time before the smaller companies that keep up competition would be eliminated, while the powerful concerns with tremendous reserves would remain. Then the consumer would be

forced to pay for his short "spree" of low prices for gas.

The argument that adjoining property owners benefit most by the paving of highways was advanced as a means for counteracting demands that gasoline be taxed to provide for improved roads or to maintain them. Speakers told of farms increasing in value from \$50 to \$100 an acre before an improved highway passed them to \$100 and \$200 an acre after the improvement was made.

In the discussion here about officers for the National Motorists' Association, it developed that J. Borton Weeks, Philadelphia lawyer and president of the Keystone Automobile Club, will be nominated for president when delegates to the first annual convention meet in Washington Nov. 6 and 7.

One of the important bills that the national organization will present to the next Congress is one proposing relief from exorbitant Federal taxation of the automobile.

Creditors Ask Court for Vim Receivership

PHILADELPHIA, Sept. 26—Creditors of the Vim Motor Car Co. of Philadelphia have filed a bill in equity in the United States District Court, asking for the appointment of a receiver. It is claimed that the company is solvent, but that it has not sufficient capital or liquid assets to continue operations. Liabilities are placed at between \$900,000 and \$1,000,000 and assets at \$1,250,000, of which amount from \$750,000 to \$1,000,000 is represented by real estate.

The Vim company has been operating for the last six months under an extension agreement with the creditors, which expires Oct. 20. It is claimed that the business of the company has not been conducted with such profit as to enable the company to comply with the terms of the agreement.

Vim counsel announce that the company will contest the application for receivership.

Jimmy Murphy Told of A. A. A.'s Action

(Continued from page 657)

as I am in this particular case if a foreign club penalized Bordina for preferring Indianapolis to a fourth-rate event at home.

On coming to Europe Murphy's only definite plan was to run in the European Grand Prix at Monza. He had no arrangements for the Spanish race and was never entered for that event. Murphy, who is now in Paris with his mechanic, Ohlson, and Riley J. Brett, is endeavoring to secure berth on a steamer for home.

The American race driver declares that the supercharged Fiats beat him on speed and acceleration and also had the advantage of a better brake system. Except for one stop to adjust his brakes and a plug which was firing intermittently, Murphy had no mechanical trouble during the race.

Dorris Not Decided on Proposed Merger

If It Drops Out Other Companies
May Consolidate with
Haynes and Winton

ST. LOUIS, Sept. 25—There is a strong possibility that the Dorris Motor Car Co. will withdraw from the proposed merger with Haynes and Winton into the Consolidated Motor Corp., although no official action has been taken as yet.

The matter undoubtedly will be settled at a Dorris stockholders' meeting, to be held here Oct. 5, at which time the stockholders will consider steps for the proper financing of the Dorris company to permit of development which they feel their product should have.

It is said that Dorris officials regard the merger off so far as they are concerned, although they have taken no steps to withdraw, in order to give the eastern banking interests an opportunity to put the deal through if they can. It is understood here that the completion of the merger has been held up because conditions in the stock market make it inadvisable to float the securities at this time.

Those close to the eastern promoters of the merger say that, even if Dorris withdraws, the consolidation of Winton and Haynes will be carried through, and that the promoters are figuring on at least two other automobile companies coming in to fill any withdrawals.

Durant Plans Surprises When He Changes Models

DETROIT, Sept. 22—Speaking to a meeting of 150 distributors of Durant cars at the Lansing plant this week, William C. Durant told of changes he plans to make on one or more of the cars now being manufactured. Some big surprises were promised but no details of the changes would be released for publication. The distributor session lasted two days.

In a general sense it is understood the changes will be principally in the bodies, a new and better type being planned which will be strengthened throughout.

Williams Chosen Head of Acme Motor Truck

DETROIT, Sept. 26—Clarence Williams of Cadillac, Mich., has been named president of the Acme Motor Truck Co. of that city, succeeding W. A. Kysor, whose resignation was recently announced.

Williams formerly was in the lumber manufacturing business in that city, but has not been engaged in active business recently.

The company will announce a new sales manager within a short time, to succeed C. J. Helm, who is now secretary and general manager.

Trade-in Flourishes with Coast Dealers

Used Car or Truck, with No Additional Cash, Accepted as First Payment on Sale

LOS ANGELES, Sept. 25—What formerly were regarded as ethics in automotive merchandising here are being relegated to the discard. Cars and trucks are being put in the hands of owners with almost every plan of inducement to buy that can be devised.

While this undoubtedly is serving to keep up the number of sales, there can be no prediction as to the resulting effect on the financial status of the dealer. It is not expected this will come about unless there is a slump in demand.

It was the former custom of local automotive merchandisers when making a sale to require at least one-third of the purchase price as a down payment. The deferred monthly payments were not permitted to exceed one-tenth, or, at the outside, one-twelfth of the balance. Trade-ins were not accepted unless there was a cash payment in addition.

No Cash Payment Asked

This is changed now. A used car or truck is acceptable as the first payment, and no cash in addition is demanded. No secret is made of this way of doing business, as advertisements are inserted in the local papers announcing that used cars will be taken as first payment, and if the owner cannot deliver a clear title to the used car itself, the equity will be accepted.

Deferred payments are almost any sum the purchaser may desire, and are spread over a period as long as may be necessary to cover the balance. There are said to be instances on record of interest having been charged on sales of this kind that violate the State law, and dealers recently were notified by the Attorney General's office that, unless this is stopped, prosecution for usury will be entered.

Whether this notice will have any effect on the system remains to be seen, as it is the long period of payments at high interest which has made the business possible, because financing companies are handling practically all paper.

Trucks Pay from Earnings

Motor truck sales activities are being conducted along the same lines as passenger cars, or even to the extreme. Trucks are being put in the hands of purchasers without any down payment and no payment required until ninety days have elapsed. A traded-in truck is acceptable as the first payment. Instances have been reported of no cash being required for three months and successive payments being at the same intervals. The idea in this is said to be to permit the purchaser to pay for the truck out of its earnings.

This system naturally is leading to

JAPAN CANCELS TRUCK DUTY AND LOWERS CAR

NEW YORK, Sept. 24—It is announced by the Japanese Consulate General that the Japanese Government has ordered the cancellation of all import duties on motor trucks reaching Japan up to March 31, 1924.

Until that date the import rate on American automobiles will be cut in half also.

flagrant abuse. An ostensible purchase may be made, and the buyer operate the truck for six months and then permit it to be replevined. He has made but a single payment, and the rest of the earnings have been used as he saw fit. This means that within the near future some dealers are going to acquire a heavy stock of repossessed trucks which will have to be reconditioned and retired before they will be salable again.

Trucks have been very much in demand throughout the summer months, and, as their earning capacity is high, ostensible purchasers, through this method of doing business on the part of the dealers, have been in a position to derive a good income from their trucks and devote it to their own purposes, instead of applying it on the purchase of the truck.

The sales practices referred to have become quite general. Each individual dealer has the prerogative of handling his own business as he sees fit, and what will be the general effect on business only can be conjectured at this time.

Indiana Dealers Report Big Volume of Used Cars

INDIANAPOLIS, Sept. 24—An actual increase of 14 per cent in new car sales in Indiana during August as against the total reported in July is shown in the new car sales report of the Indianapolis Automobile Trade Association. This brings August to within 15 per cent of the 13,594 new car sales made during April, the top mark of the year.

With a total of 11,428 new cars sold last month, many of them representing trades, September finds the dealers with a great volume of used cars on hand and strenuous efforts have been made to move them during the last week by concerted classified advertising. An automobile trade association news letter which is to be released in a day or two warns all members of the association that there is an undoubted glut in the used car market.

No conclusive figures are on hand to show the total number of used cars in the hands of dealers but it is believed that never were there a greater number in storage in this city and vicinity. Indeed, some investigators say there are so many that they will require the leasing of added space to store them.

Resale Value of Cars Retards Coast Sales

Business in California Suffers, Also, Because of Condition of Fruit Crop

SAN FRANCISCO, Sept. 24—Although August sales of automotive vehicles in California showed an increase of approximately 29 per cent over those of August a year ago, conditions both within and outside of the industry combined, the first half of September, to slow down the buying of cars, and to force the dealers to the conclusion that fall selling would be slow, though probably somewhat better than during the last four months of 1922.

Price cutting in almost all lines, announcement of new models, and the forecast by Ford of an "important statement" to be issued Sept. 20 were the factors within the industry which made the public slow in buying. The feeling is prevalent in northern California that there will be further price reductions.

Owner Keeps Old Car

Added to this is the fact that the price reductions already made have reduced materially the resale value of used cars. The man who was on the point of turning in his old car and getting a new one could have obtained of, say, \$500 for his old car, finds that, since the price reduction he can get only \$250 or \$300 for it. He has determined, therefore, to expend \$100 or \$150 on repairs and keep the old car.

His idea is that he wants transportation, and, with the nearly 6500 miles of paved roads in this State, he figures that he can get more than the turn-in value of his car by having it rebuilt. This is one of the most powerful of all the factors which are materially slowing down fall sales here.

Outside the industry, the condition of the fruit crop and the prices being received for it have been influential factors in halting sales. The prune men, with a 1923 crop of approximately 160,000,000 lb. of dried prunes on their hands, find that they also have a carry-over from 1922 of nearly 40,000,000 lb. to be disposed of.

Prune Price Cut in Half

This means 200,000,000 lb. of dried prunes to be sold this year. Where the prune growers expected to get 24 cents a pound, they are counting themselves fortunate if they get 12 cents. The Eastern market is overloaded with prunes, and the European market has no money to buy them. Consequently, the grower is getting small return for his crop and cannot buy a new car.

Rain late in August and early in September did heavy damage to the grape crop in all parts of the State. In addition to this the sales of raisins have slumped, due largely to ill-advised and

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Alabama Crop Value Higher Than in 1922

Statistician Figures It Will Bring
in 14.2 Per Cent More
Revenue This Year

BIRMINGHAM, ALA., Sept. 24—Alabama crops will bring in 14.2 per cent more revenue in 1923 than 1922, according to F. W. Gist, State-Federal statistician in Alabama, based on crop estimates made between Sept. 1 and 15 and on prevailing markets as of Sept. 12 to 15.

The estimate of cotton production used in his figures was that of Sept. 1, and the market quotations were those of about Sept. 12. He estimated the total value of Alabama crops at \$229,962,000 in 1923, as compared with a total value of \$201,108,000 in 1922.

The largest increase in value was in the cotton crop, which compares for 1923, \$130,634,000, and for 1922, \$114,200,000. Since Gist made his estimate on cotton, reports place the crop for Alabama at about 25,000 bales less, and the market on cotton has increased approximately 2½ cents, making another increase in value of the crops of approximately \$6,000,000.

Crop Awaits Ginning

One vital point about the present season is that the farmers are to receive the large increases in the market price of cotton because the season is late and practically the total crop in Alabama is yet to be ginned.

It is now estimated that the cotton crop of the State will not exceed that of 1922. Every other crop will be smaller than they were in 1922. This means that the total increase in the value of the crops is in better market prices.

The increase in income to the Alabama farmer for 1923, as estimated by Gist, means that the farmers will be more prosperous than in many years. Last year they were able to pay off a large proportion of the accumulated debts of the two or three years before.

This year those who were able to produce their proportion of the crop two years in succession should be out of the woods and able to invest in anything that strikes their fancy up to their average limitations.

Farmers Should Be Able to Buy

The farmers of Alabama should be in a position this year to buy a great deal of farm equipment, including tractors, trucks and passenger cars. The time for the automobile concerns to press their claims is right now while the farmer is beginning to sell his cotton and realize from his other crops.

The conditions in Alabama might be taken as a fair example of the other southeastern states. They are better than those of South Carolina, Georgia and Mississippi, but not so good as those of Tennessee, North Carolina and Flor-

FARMERS IN GEORGIA PURCHASE MORE CARS

ATLANTA, GA., Sept. 25—The Georgia Motor Vehicle Department advises that total collections from the sale of automobile license tags throughout the State this year from Jan. 1 to Sept. 15 reached a total in excess of collections during the entire year of 1922, and nearly \$100,000 in excess of the largest previous year in the history of the department—1920.

An interesting and important feature is the fact that, while license sales in the rural counties last year were more or less negligible, there has been a remarkable increase this year in such counties. This indicates that farmers have purchased so far this year in Georgia 20 to 25 per cent more cars and trucks than in any previous year, and nearly 50 per cent more than last year.

ida. Arkansas and Louisiana are in practically the same relative position as Alabama.

Even South Carolina and Georgia with their relatively very poor prospects of production are in a position to realize a fair condition in regard to the value of their crops. These States are in worse condition as far as comparative values of crops are concerned than any others.

The natural conclusion from this state of affairs is that the entire Southeast, regardless of light production (with the exception of North Carolina and Tennessee), is going to be in excellent position to absorb automobiles in the rural sections for the next six months at least.

Cars, Also, Given Blame for No 5-Cent Rail Fare

WASHINGTON, Sept. 24—In a brochure issued by the American Electric Railway Association, motor competition heads the list of reasons why a 5-cent fare on trolleys is a thing of the past.

There would never have been a 5-cent fare in the past, the brochure says, had railway companies been able to foresee the advent of the automobile. It also states that when street railway service was started, the founders proceeded on the theory that they always would handle practically all local transportation.

Continuing, the brochure says:

A private automobile passenger carried is a street railway passenger lost. Offhand, the loss caused by private automobiles may seem small, but when you consider that there is a machine for every eight or nine persons in the United States you will realize that the total is large.

Everyone realizes, of course, that the passenger bus also has cut in heavily on street railway company's receipts. These facts about competition have a very large influence on the size of street railway fares.

Illinois Maintains Good Sales Record

For Half Year Cars Sold Aver-
aged 18,596 Monthly—Indiana
Shows Slight Decline

CHICAGO, Sept. 22—There was no recession during July and August in the wave of passenger-car sales in Illinois, which shows a monthly average of 18,596 as compared with 10,664 for the first six months of 1923.

July, with 20,008 to its credit, was 1661 behind May, the peak month, when the interest in touring and the motor-car was greatest, as was to be expected with the nice weather approaching.

In August the demand for passenger cars abated slightly, except in the case of Ford, sales increasing from 8332 in July to 8428 in August. For the eight-month period of 1923 Ford sold 41 per cent of all cars bought in Illinois.

Indiana Below Last Year

Indiana shows only a slight decrease, the monthly average for July and August being 10,664 as compared with 10,692 for the first six months of 1923. Neither July nor August, however, was within hailing distance of the peak month, which was April, with 13,810.

Cook County, in which Chicago is located, has to its credit 13,464 cars out of a total of 37,192 sold in the State during July and August, and of this number 5110 were Fords.

Statistics for Eight Months

Following is a table giving the figures for the first eight months of 1923:

INDIANA			
Month	Fords	Medium and Low Priced*	High Priced
January	3,871	1,835	206
February	4,206	1,949	164
March	7,426	5,826	342
April	6,445	6,867	498
May	5,610	6,781	343
June	5,120	6,419	249
July	4,762	4,879	258
August	6,733	4,498	199
Total	44,173	39,054	2,259

ILLINOIS			
Month	Fords	Medium and Low Priced*	High Priced
January	4,574	5,433	1,013
February	4,183	4,124	698
March	5,444	6,507	685
April	7,994	11,326	930
May	8,199	12,497	973
June	6,735	10,859	780
July	8,332	10,837	839
August	8,428	8,042	714
Total	53,889	69,625	6,632

* Excluding Fords.

The foregoing statistics were compiled from detailed figures of new-car registrations furnished by Robinson's Advertising Service, Springfield, Ill., and the Indianapolis Automobile Trade Association.

Jobbers' Practices Disturb Producers

Past Due Accounts, Discounts and
Trade Acceptances Dis-
cussed in Chicago

(Continued from page 653)

This plan and that expounded by Smalley Daniels of the New Era Spring & Specialty Co. were the basis of most of the discussion. Daniels revealed that for several years his company has been operating under a plan which fixes the 10th and 25th of the month as discount dates and that it has been found highly satisfactory by both the company and its customers. This plan was hailed by some of the members as the solution of the problem.

Elaborating on his plan of two discount dates a month, Daniels explained that customers are permitted to discount on the 25th all invoices for goods purchased in the first half of the month, and on the 10th of the following month they are permitted to take discounts on purchases invoiced in the last half of the month.

Eliminates One Objection

This, he said, eliminates one of the principal objections to the strict rule requiring that discounts be taken within 10 days from date of invoice. This objection is that it is too great a burden on the buyer's bookkeeping department to be watching daily for discount expirations and sending out checks at irregular intervals. Under the plan of two discount dates a month the manufacturer, he said, gets his money almost as soon as under the 10-day rule, the average discount limit being 16 days, and the jobber is saved the annoyance of daily, or frequent, remittances.

Under this plan, Daniels said, the bills receivable by his company at the end of the month usually are very little, if any, more than the sales of the month, indicating that collections are maintained almost at 100 per cent. He said his firm and its customers were perfectly satisfied with the system.

Believe It Good Solution

A large proportion of the members expressed their interest in this plan and indicated that they believed it was a satisfactory solution of their problems.

It came out that jobbers are not altogether to blame for abuse of terms and discount rules. Some manufacturers, it seems, have meekly accepted remittances as they come with no protest when discounts are arbitrarily deducted.

"So many of us sell our goods and take what we can get," one member said.

It is all right, representatives of some of the smaller concerns said, for those whose customers buy in large quantities to be somewhat independent in maintaining their terms. It was pointed out, however, by these representatives that

many of the customers of their firms buy in small quantities, discounts often are less than one dollar and it looked cheap to be constantly billing customers for the few cents they improperly take on discounts. The only answer to this was that to successfully maintain a policy is must be impartially enforced with respect to large and small buyers.

Educational work was recommended as the best means of establishing improved methods of doing business with the trade.

FINANCIAL NOTES

Yellow Cab Manufacturing Co. stockholders have approved the increase in Class B stock to 600,000 from 200,000 shares of \$10 par. Additional stock will be offered to the stockholders at \$12.50 a share. The annual dividend on new capitalization will be \$5, the present rate being \$6. The company also has declared a monthly dividend of 4 1/2 cents on the Class B stock, payable Nov. 1 to stock of record Oct. 25. A committee has been appointed to consider the advisability of declaring a stock dividend.

Michigan Securities Commission accepted the following list of automotive securities during July: Acme Motor Truck Co., \$150,000 preferred stock, \$522,440 common stock; Erdman-Gulder Co., \$200,000 class "A" preferred, \$200,000 class "B" preferred, \$100,000 common stock; Inland Automobile Co., \$70,000 common stock; A. O. Smith Corp., \$5,000,000 ten-year first mortgage 6 1/2 per cent gold bonds; Wolverine Motor Truck & Coach Co., \$400,000 preferred, 40,000 shares no-par common as bonus with preferred.

McCord Radiator & Manufacturing Co. reports \$74,269 net income in August, compared with \$70,465 in July. The total net for the first six months of the company's year was \$596,343, which is in excess of annual dividend requirements of \$450,000. Current assets as of Aug. 31 were \$1,935,000, against current liabilities of \$364,000.

American Chain Co., Inc. reports net earnings from operations of \$2,392,218 for the first half of the year. Depreciation, etc., are given as \$486,450; interest charges, \$187,366; net income, \$1,718,402; surplus after dividends, \$1,380,695 and profit and loss surplus, \$7,799,598.

India Tire & Rubber Co. has declared its usual dividend on common and preferred stock to all stockholders of record Sept. 20. August, the company states, was the best August it ever had and second only to the biggest record month within the past five years.

Packard Motor Car Co. has declared a dividend of 3 per cent on the common, payable Oct. 31 to stock of record Oct. 15. The company previously had paid 2 per cent quarterly and on July 31 paid an extra dividend of 2 per cent.

Borg & Beck, Inc. reports August net income as \$21,244 after expenses, interest, etc. For eight months the total was \$380,398. Current assets on Aug. 31 were \$1,178,360 and current liabilities \$203,130.

Moon Motor Car Co. has declared the regular quarterly dividend of 75 cents a share and an extra 25 cents on the common, payable Nov. 1 to stock of record Oct. 15.

Goodyear Tire & Rubber Co. on Nov. 1 will redeem \$750,000 of its first mortgage twenty-year 8 per cent sinking fund gold bonds, at 120 and accrued interest.

BANK CREDITS

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

Market trends were irregular last week, with a slight downward movement in stocks and continued improvement in grain and textile prices.

Steel buying is reported as improving, while iron remains dull. Prices of steel have been firm for the most part, but with some concessions by individual companies.

Car loadings during the week ended Sept. 8 were 928,858. The decline of 163,709 from the preceding week was mainly due to the holiday. Compared with the corresponding week last year, there was an increase of 105,611. Reported reductions in maintenance expenditures indicate that railroad net earnings will show an improvement for August, as compared with July.

Crude petroleum production in the week ended Sept. 15 was 2,274,950 barrels daily, only 5750 barrels less than the record total for the week before. Further cuts were made last week in prices of both crude oil and gasoline.

Figures compiled by the F. W. Dodge Corp. show building contracts awarded in thirty-six States in August amounting to \$298,629,200, as against \$315,024,200 in July. The floor space reported in the August contracts is 47,910,100 sq. ft., comparing with 48,970,800 in July. The value of contemplated projects reported for August showed a greater decline, the total being \$508,484,000.

Anthracite coal production in August amounted to 8,868,000 tons 548,000 tons more than in July, and with the exception of March of this year, the highest monthly total since August, 1918. The production of bituminous coal was 48,864,000 tons, the highest figure since January, and 3,738,000 tons more than in July.

Truck and Parts Makers Work on Marketing Plan

DETROIT, Sept. 26—Changes in parts distribution methods, which are designed to improve service and which, at the same time, will protect the interests of dealers, are being worked out by Motor Truck Industries, Inc., through a special committee. The committee will probably complete its work in time to permit of adoption of set policies at the annual meeting of the association, Nov. 21.

The committee met with directors of the association today, when a number of proposed plans were discussed. The parts distribution committee is headed by E. A. Williams, Jr., president of the Garford Motor Truck Co., and comprises both truck and unit parts manufacturers. The changes contemplated are entirely of a marketing nature and will have the cooperation of parts makers and truck makers in making them effective. The date for the annual meeting was set today by directors, the place of meeting still to be fixed.

Sale of Gorgas Unit Clouds Shoals Future

Amount Received Will Be Deducted from Original Bid Submitted by Ford

WASHINGTON, Sept. 25.—Sale of the Gorgas power plant by the War Department to the Alabama Power Co. has provoked wide speculation as to Henry Ford's plans in regard to Muscle Shoals. The Ford company had previously announced that its bid included the Gorgas property.

It is announced that the \$3,472,487 received from the sale would be deducted from the original Ford offer of \$5,000,000 so that the automobile manufacturer would pay only the balance.

It is said that Ford was particularly desirous of obtaining the Gorgas unit in order to begin operations. Spokesmen for the Administration say that the Gorgas power house is 75 miles from Muscle Shoals and not related directly to the proposed Ford enterprise.

The subject will be taken up by the Southern delegations in Congress, it is said, because the industrial prosperity of the Alabama region depends upon this development of power.

Baush and Huron Merger Brings Stockholder Suit

SPRINGFIELD, MASS., Sept. 25.—The Baush Machine Tool Co., manufacturer of automotive parts, machine tools, special machinery and metal alloys, with seven members of the concern, are respondents in a bill in equity, filed in the United States District Court, in which Edward Hellier, New York, a stockholder, seeks damages and an accounting of profits.

It is alleged that in acquiring the Huron Metals Co., for which \$50,000 is mentioned as a fair value in the complaint, Baush stock to the value of from \$2,200,000 to \$3,500,000 was given in exchange, and that since the properties were merged, the Baush company has suffered losses of \$1,000,000.

Individual defendants are George D. Haskell, president; Roger D. Babson, vice-president and general manager; Augustus P. Loring, Aldrich Erickson, Caleb Loring, Bowen Tufts and James H. Drury.

Bureau of Standards Explosion Kills Four

(Continued from page 658)

The special investigating committee has made the following report to Secretary Hoover:

The explosion was caused by the ignition of a mixture of gasoline vapor and air in the altitude chamber. The research under way was concerned with comparative tests of fuels of differing volatility, and aviation

gasoline was under test at the time. The Board believes that the presence of the gasoline vapor in the chamber was due either to a leak in the feed line leading to the carburetor of the engine or to a leak from the carburetor due to the sticking of the float mechanism.

This conclusion is supported by a remark made by one of the members of the testing staff an instant before the explosion, to the effect that the gasoline readings which he was taking indicated the presence of a leak.

The condition of the set-up following the fire is such that it is not possible to establish which one of the above causes occasioned the leak.

Since it is known that only three gallons of gasoline had been drawn for the test, that the engine had been running from about 11 a.m. to 12 m. with the chamber open, that the chamber was closed at about 12:30 for the purpose of running at a lower temperature, and that the engine had been operated from about 1 to 2 p.m. with the chamber closed, it is believed that not more than a quart of gasoline could have escaped into the chamber.

This amount, however, if vaporized, would have been sufficient to account for the energy of the explosion.

The probable source of the ignition was a fire through the carburetor. Support to this conclusion is given by the statement of one of the survivors that he heard the engine backfire immediately before the explosion.

INDUSTRIAL NOTES

Packard Electric Co., Warren, Ohio, has broken ground for the construction of a \$350,000 addition to its present plant. The new building will be two stories in height and will be used exclusively in the manufacture of transformers, thus tripling production.

Weber-Kirch Manufacturing Co., recently established in Keokuk, Iowa, has shipped its first carload of automobile accessories to Flint, Mich. The company reports it has large contracts for the ensuing few months and indications are that the plant will run at capacity.

Grimm Aluminum Casting Co. of Manitowoc, Wis., has let contracts for a complete new foundry plant in that city to cost about \$50,000. The work will be rushed so that the new facilities may be available late this fall. The concern does much casting for the automotive industries and has been overcrowded with orders for a long time. It will nearly treble its present capacity in the new works.

Johns-Manville Co., which for many years maintained its main factory and general offices in Milwaukee and is now occupying its new works at Waukegan, Ill., has sold its main office building in Milwaukee to Gimbel Bros. It is establishing a distributing branch on West Water, between Grand Avenue and Sycamore Street, Milwaukee, for automotive and other products. A fifteen-year lease has been taken of a five-story building at this location.

ILLINOIS INCOME EXCEEDS OHIO

SPRINGFIELD, ILL., Sept. 24.—Although Ohio ranks third in number of automobiles and Illinois fifth, the revenue from this State exceeds that of Ohio and Illinois claims distinction, too, as one of eight states in the Union which turns its entire motor revenue into improvement of the primary roads.

METAL MARKETS

Vacillation is the dominant note in steel market sentiment. A few months ago, when fresh buying dwindled down to negligible proportions, expectations of a lower market in the fall were voiced in many quarters. Then followed sundry advances in the costs of steel making, and these were used as an argument against the possibility of declines. For a time even advances were predicted. In the last few days sentiment has undergone another change, and some of the sales managers who a week or two ago conservatively expressed the belief that prevailing prices would be maintained throughout the remainder of the year, now declare the market's condition such that all predictions are idle.

The attitude of buyers is peculiar. They are not forcing prices down, but they let sellers understand clearly that they are aware of the vulnerability of prices and if price cutting once started that it might go much further than generally expected. Recent importations of steel billets, although on a very limited scale, have shown that prevailing price levels for semi-finished steel are on the defensive. Every once in a while a report that sheet bar sales have taken place at below the \$42.50 price is bandied about, but Pittsburgh, as well as Youngstown, insists that the market is firm at that level.

A very fair indication of the attitude of steel consumers toward higher costs is furnished by the situation in the market for cold-finished steel bars. Rollers of hot bars have recently promulgated a \$3 per ton extra for the screw stock quality which is required for cold-finishing, but buyers of cold-finished steel bars point to price concessions from the prevailing 3.25 cents level made by a small producer as the best answer to intimations of higher prices. Sheet demand, especially that emanating from the automotive industries is in a class by itself.

Mills are working very close to capacity, but, although it takes longer to turn out sheets than most other steel products, no difficulty is encountered in obtaining prompt shipments. The sheet mills have no appreciable backlog of orders, most of the buying consisting of orders with specifications for shipment within a few weeks. In years gone by mills would feel very uncomfortable if at the beginning of a new month there were not on hand sufficient orders to offset the capacity during the month following. These conditions have changed. Although October is but a few days off, it is still possible to secure sheet shipments during that month and, as for November shipments, there appears to be no rush at all. Of course, in former years orders were placed for round tonnages and, until specifications were furnished, these orders were always more or less subject to cancellation, especially if there was a sharp break in the market. The bulk of the business on sheet rollers' order books to-day consists of specified material.

Pig Iron.—Automotive foundries appear to follow for the most part the general trend and buy from hand to mouth, being confident that prevailing low prices will obtain for some time to come.

Aluminum.—The sole domestic producer continues to dominate the situation, importers following the pace he sets. Resale lots attract somewhat less attention from buyers.

Copper.—Sentiment appears to be slightly improved, and prudent buyers are attracted by the low prices recently announced for copper and brass products.

Calendar

SHOWS

- Oct. 17-27—New York Electrical and Industrial Exposition, showing electric trucks, cars, parts and accessories, Grand Central Palace.
- Nov. 4-10—New York, First Automobile Exposition of the Foreign Automotive Association, Hotel Astor.
- Nov. 11-17—New York, Annual Automobile Salon, Hotel Commodore.
- Nov. 12-17—Chicago, Manufacturers Auto Accessory Exhibit, First Infantry Armory, Robert M. Jones, manager.
- Jan. 5-12—New York, Annual Automobile Show, under the auspices of the National Automobile Chamber of Commerce, Eighth Coast Artillery Armory.
- Jan. 26-Feb. 2—Chicago, Annual Automobile Show, under the auspices of the National Automobile Chamber of Commerce, Coliseum and First Regiment Armory.
- Jan. 26-Feb. 2—Chicago, Annual Automobile Salon, Hotel Drake.

FOREIGN SHOWS

- Sept. 28-Oct. 7—Berlin, Automobile Show.
- Oct. 4-14—Paris, Passenger Cars, Bicycles, Motorcycles and Accessories, Grand Palais.

- Oct. 15-20—London, Motorcycle Show, Olympia.
- Oct. 24-28—Paris, Trucks, Agricultural Tractors, etc., Grand Palais.
- Nov. 1-15—Buenos Aires, Annual Automobile Exposition, under the direction of the Automovil Club Argentino.
- Nov. 2-10—London, Automobile Show, Olympia.
- Nov. 22-Dec. 1—London, Motor Transport Exhibition.
- Dec. 8-19—Brussels, Passenger Cars, Trucks, Airplanes and Motor Boats, Aviation Palace.

RACES

- Oct. 1-3—St. Louis, Pulitzer Cup Aeroplane Races, under the auspices of the St. Louis Air Board.
- Oct. 28—Barcelona, Spain, Grand Prix for vehicles of 1500 c.c.; Nov. 1, International Grand Prix for cycle cars of 1100—Nov. 4, International Grand Prix for two liter.

CONVENTIONS

- Oct. 8-12—Pittsburgh, Convention of American Society for Steel Treating.
- Oct. 8-15—Atlantic City, Convention of Electric Railway Association.
- Oct. 24-26—Cleveland, Thirtieth Annual Convention of the National Association of

Farm Equipment Manufacturers, Hotel Statler.

- Oct. 25-27—Lake Mohonk, N. Y., Mountain House, Semi-Annual Meeting of the American Gear Manufacturers Association.
- Nov. 12-17—Chicago, Annual Business Exhibit and Convention of the Automotive Equipment Association, Coliseum.
- Jan. 24-31—Chicago, Annual Convention and Show of the American Road Builders' Association, the former to be held in the Congress and the latter in the Coliseum.

May, 1924—Detroit, International Motor Transport Congress under the auspices of the National Automobile Chamber of Commerce.

S. A. E. MEETINGS

- Oct. 3—Minneapolis Section.
- Oct. 4—Detroit Section, Rotary Valves, E. Bournonville; Rotary Disc Valve, O. D. Heavenrich, General Motors Building, Detroit, 8 p.m.; Dinner, 6:30 p.m.
- Oct. 11—Indiana Section, Low Pressure Air-Cushion Tires, J. E. Hale, Severin Hotel, Indianapolis, 8 p.m.; Dinner, 6:30 p.m.
- Oct. 12—Mid-West Section, Fundamentals in Engineering, C. F. Kettering, Western

Society of Engineers, Chicago, 8 p.m.; Dinner, 6:30 p.m.

- Oct. 18—Metropolitan Section, Brakes, H. M. Crane, Automobile Club of America, 247 West Fifty-fourth Street, New York City, 8 p.m.; Dinner 6:30 p.m.
- Oct. 25-27—Production Meeting of the S. A. E.—Cleveland.
- Oct. 29—Buffalo Section, Problems in the Construction of Low-Pressure Tires, J. F. Palmer, Statler Hotel, Buffalo, 8 p.m.
- Oct. —Cleveland Section—No Meeting in October Because of National Production Meeting in Cleveland Oct. 25-27.
- Nov. 15—Metropolitan Section, Commercial Air Travel, C. W. Warner.
- Dec. 13—Metropolitan Section, Vehicles for Package Delivery.
- Jan. 22-25, 1924—Annual Meeting of the S. A. E.—Detroit.
- Feb. 14, 1924—Metropolitan Section, Vehicle Depreciation.
- March 13, 1924—Metropolitan Section, Replacement Parts and Accessories.
- April 17, 1924—Metropolitan Section, Fleet Maintenance, F. W. Winchester.
- May 15, 1924—Metropolitan Section, What Roads and Steels Do to Automobiles.

Resale Value of Cars Retards Coast Sales

(Continued from page 662)

badly-designed advertising, until the grape-growers and the raisin association members find themselves with a tremendous carry-over still to be disposed of, with the Eastern market apathetic and the European markets unable to buy.

The popular-priced car market has felt heavily the reduction in prices and especially the consequent fall in values of used cars, while Ford's statement left the dealers—as well as the owners—in popular-priced cars "up in the air." The small truck situation also is more or less upset by price reductions.

The new automobile law, which went into effect Sept. 1, makes the 5-ton unit hard to sell. On the other hand, larger trucks, as well as 2- and 3-ton commercial vehicles, are holding up fairly well, as are also buses and automobile stages. The great increase in the use of these passenger-carriers in California is continuing, and makes the market for them steadier, possibly, than for any other automotive vehicle.

The higher-priced passenger cars seem to be holding their own, and probably sales of automobiles priced at \$2,000 or more will increase during the remainder of the year. The whole situation, however, is very uncertain.

NO FREIGHT CAR SHORTAGE

DAVENPORT, IOWA, Sept. 26—There will be no freight car shortage in Iowa

this fall, according to the officials of the principal carriers through this State, and the fall crops will be moved handily and without delay.

England Getting Ready for Business Next Year

WASHINGTON, Sept. 24—Unprecedented activity in the automobile manufacturing industry of England is reported by Foreign Trade Commissioner William M. Park, at London, to the United States Bureau of Foreign and Domestic Commerce.

In commenting on the activity, Park states that during the past month automobile manufacturers began preparations for next year's business. The consensus is that more attention will be given to the production of light cars with higher horsepower. The report says, however:

It is not expected that there will be any immediate falling off in the demand for cars of 8 to 10 horsepower as a result of this change, for the annual tax of £1 per horsepower still has an effect on the sale of cars. Except for changes in horsepower, it is not expected that there will be any radical changes in the 1924 models.

McQUAY-NORRIS DISTRICTS U. S.

ST. LOUIS, Sept. 22—H. E. Westmoreland, sales manager of the McQuay-Norris Manufacturing Co., has divided the United States into five districts for the sales of piston rings and pins. Each division is in charge of a manager.

Minnesota Studies Gasoline Situation

ST. PAUL, Sept. 24—Overproduction of gasoline is responsible for the recent break in prices, according to the testimony of John D. Clark, first vice-president of the Standard Oil Co. of Indiana, before the commission appointed by the State of Minnesota to investigate the price of petroleum products.

Clark also declared that, although the present quotation of 16.9 cents is below the cost of refining, his company is not losing money on its current sales because of the profits derived from the by-products.

Clark also declared that gasoline prices in Minnesota probably will remain unchanged for several months, when further reductions may be made. He added that competitive companies operate nearly twice as many filling stations as does the Standard. N. J. Holmberg, commissioner of agriculture, who is conducting the probe, thereupon declared that cooperative gasoline sales agencies are probably the best protection against unduly high prices, a recommendation that may be made to Governor Press, who ordered the investigation.

Holmberg's viewpoint was based on the exceptionally high overhead involved in selling gasoline resulting from the excess number of filling stations.

In line with this view Albert Bartsch, president of the Central Co-operative Oil Association of Owatonna, Minn., told of the organization of the company in June, 1922, with \$12,425 paid in capital.